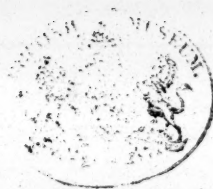


PROCEEDINGS
OF THE
ZOOLOGICAL SOCIETY
OF LONDON.

PART X.

1842.

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PROCEEDINGS
OF THE
ZOOLOGICAL SOCIETY OF LONDON.

January 11, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

A letter from the Society's corresponding member, H. J. Ross, Esq., was read. In this letter (which is dated Lamsoon, Nov. 28th, 1841,) Mr. Ross announces his receipt of various papers forwarded to him by the Society, and observes, that as he is going to a part of Kaissarich where collectors have not yet been, he hopes to procure specimens that may be acceptable to the Society. Mr. Ross also states in his letter that the Common Green Woodpecker of Europe (*Picus viridis*, Auct.) is to be found in great numbers at Trebizond, and that he has shot them as high as Gumushkhaugh, which is between Erzerroom and Trebizond. At the last-mentioned place Mr. Ross has left some specimens of birds in spirits to be forwarded to the Society.

A letter from J. Frembly, Esq., R.N., corresponding member, was next read. It is dated Gibraltar, December 8th, 1841; and chiefly refers to a collection of Brazilian Fishes, which Mr. Frembly had forwarded for the Society's Museum.

The collection of Fishes referred to in Mr. Frembly's letter was laid before the Meeting.

M. P. Gervais exhibited a drawing representing the details of a new genus of Marsupial animals, and communicated to the Meeting, in his own name and that of M. Jules Verreaux, the description of this new Mammal, which formed part of a collection brought from Swan River, and, in the opinion of the authors of the paper, will constitute among the *Marsupialia* the type of a distinct family, for which these naturalists propose the name *Tarsipedidæ*, and for the species the name of *Tarsipes rostratus*.

In general appearance, observe the authors, the *Tarsipes rostratus* bears some resemblance to a Shrew (*Sorex*); but the head is longer, and the muzzle is much elongated. The head and body together measure $4\frac{1}{2}$ French inches, and the tail $3\frac{1}{2}$ inches. The fur is tolerably dense, and composed of shortish silky adpressed hairs,

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which are of a slate-grey colour next the skin, and yellowish externally. The back is of a brownish yellow colour, and a dorsal black stripe extends from the shoulders to the base of the tail, and on each side of this stripe the fur assumes a paler hue : the upper part of the head and muzzle are of the same brownish colour as the back ; the under side of the body as well as the inner side of the limbs are yellowish ; the hairs of the moustaches are brown, and tolerably long, some about one inch in length. The muzzle is terminated by a little *muffle* ; the nostrils are laterally pierced and virguliform ; the inter-nasal furrow is nearly equal in length to the nostrils. The tail is furnished at the base with fur like that of the body, but the greater portion is covered with short hairs, as in the rat tribe : its extremity is naked beneath, but the naked portion is but a few lines in length. The ears are tolerably short, somewhat rounded, and may be compared to those of the Shrews.

The animal is plantigrade ; its hinder limbs are rather longer than those in front. The palm of the hand is naked, as well as that of the foot, which is rather narrow and somewhat elongated, as in certain climbing Mammals. The fore-feet are provided with five toes, which are free, moderately short, and naked beneath as well as the part above, on the ungueal phalanx of which the digital pad is large, and forms a little cushion, as in the fingers of the *Lemuridae* which are provided with three pairs of *mammæ* (*Tarsius*, *Galago*, and *Cheirogale*) ; the thumb has the same direction as the other fingers, and like them it has a little depressed nail, which covers but a small portion of the apical fleshy pad. The middle finger is the largest, the fingers joining it are nearly equal in length, and the thumb is rather shorter than the outer finger.

The principal peculiarities in the hinder limbs consist in the smallness of the middle toe and that next it on the inner side, and these toes are united as far as the last phalanx, as in the Syndactile *Marsupialia*, and like these animals, are provided each with a pointed nail bearing some resemblance to a little hoof. The thumb is opposeable to the other toes, has no nail, but terminated by a fleshy pad : the fourth and fifth toes are provided with a pad similar to that of the corresponding toes of the fore-feet ; they have moreover small depressed nails, which do not extend to the outer margins of the pad : the fourth toe is the largest, and the fifth, though shorter, extends beyond the line of the two syndactile toes.

Before pointing out certain peculiarities of the skeleton of the *Tarsipes*, we may add, that in the male the scrotum is suspended in advance of the penis, and that in the female the *mammæ*, four in number, are placed in an abdominal pouch. There is but one opening for excretion and defecation.

In Paris there are several specimens of this singular animal. The skull of a female studied by MM. Gervais and Verreaux had the hinder part, as well as the lower portion in the mesial line, injured ; and this circumstance, combined with its small size, observes these authors, renders it difficult of examination ; they were able, however, to observe many of its essential characters.

The skull is much elongated, especially its facial portion; and studying it isolately, one would be tempted to refer it to an animal of the Edentate order, and probably to the family of Ant-eaters, *Myrmecophaga*, &c. The sutures of its bones are not obliterated as those of the *Monotremata* of the same age, but their distinction is less marked on the face than in the cranial region properly so called. The nasal bones are elongated, and terminate in an angle projecting at their point of junction with the anterior margin of the frontals; these are contracted at the interorbital portion, but they present no postorbital process to contribute towards the formation of a complete circular orbit: their antero-posterior development exceeds the transverse diameter.

The skull is broader in the parietal region, and the brain appears to have been more voluminous than in most other marsupial animals. In this form of cranium we perceive an analogy in the genus *Macroscelides*. The cranial cavity is proportionally more ample than in the great Ant-eater (*Myrmecophaga jubata*). The occipital vertebra in the individual described is not perfect, and does not extend beyond the anterior occipital or interparietal, which is large and much broader than in the *Myrmecobius*. The ex-occipital, or, more correctly perhaps, the mastoid, articulates with the lateral margin of that bone. There is neither parietal crest nor occipital. The two temporal fossæ communicate by a nearly circular opening. The palatine portion of the intermaxillaries, and the anterior portion of the maxillary bones, have two small incisive foramina, and these are somewhat elongated; there is moreover in the palate two elongated openings, separated only by a very narrow bony ridge; the posterior boundaries of these openings and the termination of the palate, owing to the fractured condition of the skull, could not be seen. The suture between the nasal and maxillary bones, as well as the lachrymal, which is rather small, are nearly obliterated; the lachrymal canal is visible. The maxillaries, the length of which is proportionate to the nasal bones, give origin to a zygomatic process, and in fact there exists a complete zygomatic arch. The malar bone is of moderate thickness and depth; its posterior portion gives off a small process which projects above the temporal apophysis, and appears to represent, in a rudimentary condition, the little osseous temporal process observed in the *Echidna*, rather than a true orbital process of the zygoma, which in fact is wanting, as well as the orbital process of the frontal; and in this respect the *Tarsipes* differs from the *Myrmecobius*, with which there exists an analogy as regards some other characters. The alveolar portion of the maxillaries is very hard and presents a cutting edge, which is elevated in such a manner as to give to the palate a slightly concave surface.

The infra-orbital opening is small, and placed in a longitudinal groove of the maxillary bone situated a little in advance of the bone of the zygomatic process through which it is perforated. The auditory bullæ are convex, and nearly continuous with the squamous portion of the temporal. The tympanic circle is complete, and communicates in a direct manner with the bullæ by a large canal, which

permits of the interior of the chamber being seen. The articulation of the squamous portion with the great ala of the sphenoid, is oblique from the inferior margin of the zygomatic process in the anterior central portion of the bone of the auditory chamber. The lower part of the squamous element and this outer portion of the pterygoid are on the same plane, and though bulbous, they do not form a second auditory chamber, as in some marsupials, but merely an inflated portion of the cranial cavity. The glenoid cavity for the articulation of the lower jaw is indistinct. This jaw resembles in general form that of *Myrmecophaga jubata*, and it moreover bears a considerable analogy to that of the *Monotremata*. It is sublinear, slender, almost without a trace of coronoid process, and there being no angular process, it does not present the peculiar conformation of this part of the lower jaw which characterizes all the known marsupials; and the condyle, instead of being transverse as in these animals, is situated at the apex of a little curvature formed by the entire masseteric portion of the maxillary, approaches to a circular form, and is somewhat oblique in its direction, as in the *Myrmecophaga jubata* and in the *Monotremata*. In the *Myrmecobius* an approach to this disposition of the condyle is observable. The masseteric depression is in the form of a longitudinal cleft, which is much longer than the cleft found in certain species of *Macropodidae*, and very much resembles that which we observe in the lower jaw of some birds. The two inferior maxillary are joined at the *symphysis* by a ligament only, but their junction appears to be more perfect than in the *Edentata* in general: these bones are as remarkable for their compact structure as for their transparency.

Of the remaining portion but few parts are known, viz. the radius and the inferior portion of the cubitus; these are separated in their whole length; the tibia and the fibula, which are also separated as far as their articulation with the tarsus; the fibula is much compressed at its upper extremity.

The dental system of the *Tarsipes* is most anomalous: the lower jaw presents in front a pair of cultriform teeth which have the same horizontal direction as the jaw; the basal portion of these teeth is narrower than the other portion, and the root is very deeply inserted into the jaw; the apical portion is unfortunately broken. These teeth are applied one against the other by their internal surface. Near the posterior third of the dental portion of the same jaw is a small transparent gemmiform tooth, which has the appearance of a little process recurved angularly outwards.

On the anterior third of the left side of the upper jaw are three small teeth; the first, which appears to be in the incisive bones, and which is in a line with the incisive openings, is in the form of a minute simple tubercle; the third, which is situated at the hinder extremity of the anterior third of the dental portion of the jaw, is also gemmiform, rather slender, longer than the first, and somewhat inclined forwards. Between this and the foremost tooth is another tooth, which is smaller than either, and situated nearer to the third than the second tooth. All these teeth are transparent and have but

one root; they are all which could be found in the specimen examined; and it is only by inspecting several individuals that the dental formula of this little animal could be correctly ascertained. It is supposed by the authors, that in front of the foremost pair of teeth of the upper jaw here described, another tooth exists, the root of which only is visible; if such should be the case, there would then be three pairs of incisors of unequal size in the upper jaw, and behind these a canine, which is the largest of those teeth.

The Tarsipes, as has been shown, presents characters which could scarcely be supposed to exist in a single species, and affords an additional proof that the inspection of a single portion of any animal is not sufficient for the determination of the peculiarities of other parts. Its feet are those of an animal elevated in the scale of organization, and nearly resemble those of the *Tarsius*, differing only in the union of the second and third toes of the hind-feet. The Tarsipes also having these two toes shorter than the others and provided with subulated nails; the singular form of its teeth, and, above all, the analogy which its skull bears with that of the *Monodelph Edentata* and *Monotremata*, render it difficult to determine the rank which the Tarsipes ought to occupy among the *Syndactylous Marsupialia*. It may be observed that it makes a considerable approach to *Myrmecobius*, an animal which, in some respects, has likewise affinities with the *Edentata*; but here the feet nearly resemble those of the *Dasyuri*. The Tarsipes in all probability had a long tongue, as in the *Echidna* and the *Myrmecophaga*; and it appears, according to the observations made by Lieutenant Dale and Mr. Gilbert, and communicated to M. Gervais by Mr. Waterhouse, that the tongue of the *Myrmecobius* is also very long.

Mr. Gould exhibited a new species of *Petrogale*, which he characterized as follows:—

PETROGALE INORNATA. Petr. facie et dorso arenaceo-cinereis; humeris canescente irroratis, lateribus pallidioribus absque notis conspicuis; antibrachiis tarsisque arenaceo-cinereis digitis ad apicem saturate fuscis; cauda dimidia basali arenaceo-fusca.

Hab. North coast of Australia.

General colour of the upper parts sandy grey, grizzled over the shoulders, and becoming much lighter on the flanks; an indistinct line, of a lighter hue, along the face under the eye; a dusky red patch behind the elbow; under surface sandy white, inclining to rufous on the lower part of the abdomen; arms and tarsi sandy grey, passing into dark brown at the extreme tips of the toes; basal half of the tail sandy brown, the remainder black, the former colour extending along the sides of the tail for some distance towards the tip; ears sandy grey, bordered by a very narrow line of dark brown on their inner edge; a dark patch at the occiput, passing into a dark line down the forehead.

	Female.	
	Feet.	Inches.
Length from the tip of the nose to the extremity of the tail }	3	2
Length of tail	1	3 $\frac{1}{4}$
Length of tarsus and toes, including the nails	0	5 $\frac{1}{4}$
Length of arm and hand, including the nails	0	5
Length of face, from the tip of the nose to the base of the ear }	0	4 $\frac{1}{2}$
Length of ears	0	1 $\frac{7}{8}$

This new species, for which I am indebted to the kindness of B. Bynoe, Esq., of H.M.S. Beagle, differs from all the other members of the genus in the unusual uniformity of its colouring. Mr. Bynoe collected it on the north coast of Australia, and this is all that is at present known respecting it. In size it is about equal to the *P. lateralis* of the western coast, to which, as also to *P. penicillata*, it is very nearly allied, but differs from both in being destitute of any markings on the sides, in the absence of any dark colouring behind the ears, and in the light colouring of the arms and tarsi.

The following "Descriptions of some new species of *Helicinae*, in the collection of H. Cuming, Esq.," by Mr. G. B. Sowerby, jun., was read:—

HELICINA STRIATULA, Thesaurus Conchyliorum, by G. B. Sowerby, jun., fig. 43. *Hel. testâ subdepressâ, concentricè substriatâ, fulvo-rufescente; aperturâ subquadratâ, margine albo, crasso, reflexo, integro, subsinuato, posticè subdepresso.*

Alt. .23; lat. .30 poll.

Hab. — ? Mus. Cuming.

The margin of the aperture in this species is slightly lobed, and sinuous above and below.

HELICINA MAXIMA, Sow. jun., Thes. Conch. fig. 11. *Hel. testâ globosâ, subdepressâ, laevi, albâ; aperturâ magnâ, semilunari, margine reflexo, acuto; labio interno crassiusculo; columellâ obtusè angulatâ.*

Alt. .50; lat. 1 poll.

Hab. — ? Mus. H. Cuming.

Rather more depressed and larger than *H. Major*, with the base of the columella angulated instead of being notched.

HELICINA ACUTISSIMA, Sow. jun., Thes. Conch. fig. 92 to 95. *Hel. testâ plus minusve depressâ, concentricè leviter striatâ, angulari, acutissimè carinatâ, infra angulos paululùm complanatâ; aperturâ triangulari; labio interno tenuissimo; columellâ subcomplanatâ, ad basim subundatâ; labio externo acuto, validè reflexo, expanso, super angulum subdepresso.*

Hab. apud ins. Philippinas. H. Cuming legit.

Var. *a. T. luteâ, rufescente, fasciâ rubrâ infra angulo positâ.* Alt. .35; lat. .70. *Hab.* Jacna, ins. Bohol.

Var. *b. T. luted, rufescente, fasciis rubris tribus ornatâ. Hab. Jacna, ins. Bohol.*

Var. *c. T. pallidè luted, fasciâ rubrâ infra angulum, et alterâ propè suturam positâ. Alt. .25; lat. .40 poll. Hab. Siquijor.*

Var. *d. T. pallidè luted. Hab. Argao, ins. Zebu.*

Var. *e. T. luted, subtus rubrâ; carinâ albâ. Hab. Argao, ins. Zebu.*

Var. *f. T. fuscâ, nigricante. Hab. Loboc, ins. Bohol.*

Var. *g. T. rubrâ, absque fasciis. Hab. Loboc, ins. Bohol.*

The above are found on leaves of small shrubs.

HELICINA TROCHIFORMIS, Sow. jun., Thes. Conch. f. 90. *Hel. testâ luted, Helicinæ acutissimæ simillimâ, sed spirâ altiori; labio externo posticè subdepresso.*

Alt. .20; lat. .30.

Hab. Ins. Negros, Philippinarum. H. Cuming legit.

Found on leaves of palms on mountains. It differs from *H. acutissima* principally in being much more conical, and in having the upper part of the outer lip more depressed.

HELICINA MINUTA, Sow. jun., Thes. Conch. f. 40, 41. *Hel. testâ parvâ, depressâ, subangulatâ, rubrâ vel stramineâ; margine crasso, effuso; labio interno calloso; columellâ ad basim subemarginatâ.*

Alt. .10; lat. .15 poll.

Hab. —? Mus. H. Cuming.

HELICINA AGGLUTINANS, Sow. jun., Thes. Conch. f. 83 to 85. *Hel. testâ depressâ, angulatâ, obtusè carinatâ, supra infraque æqualiter convexâ, minutè concentricè striatâ; aperturâ quadrilaterali; labio interno tenuissimo; columellâ triangulari, complanatâ, subumbilicatâ, ad basin obtusè angulatâ; labio externo effuso, reflexo, posticè leviter depresso; operculo crassiusculo, irregulariter quadrilaterali; epidermide aliquando per adhæSIONEM rupium fragmentorum ni carinam latam præruptam productâ.*

Alt. .45; long. .75 poll.

Hab. apud ins. Philippinas. H. Cuming legit.

Var. *a. T. luted. Ins. Guimaras.*

Var. *b. T. aurantiâ; subtus fasciâ rubescente. Hab. Loboc, ins. Bohol.*

Var. *c. T. aurantiâ-rubescete. Hab. Dingley, Panay.*

The shells of this species are found on rocks, the decomposed particles of which are agglutinated to the epidermis in some specimens, so as to form a broad broken keel on the angle of the whorls.

HELICINA LAZARUS, Sow. jun., Thes. Conch. f. 91. *Hel. testâ pallidè fulvâ, H. agglutinanti simillimâ, sed magis elevatâ; columellâ angustiori.*

Alt. .28; lat. .40 poll.

Hab. Bongabong, N. Ecija, ins. Luzon, Philippinarum.

Found on leaves of palms.

HELICINA POLITA, Sow. jun., Thes. Conch. f. 76 to 81. *Hei.*

testâ politâ, tenui, pellucidâ, plus minusve depressâ et angulatâ; anfractibus supernè subcomplanatis, infra ventricosus; labio interno tenui, anticè paululùm inflato; columellâ angulatâ, ad basim leviter angulatâ; labio externo tenui, expanso, reflexo, super angulum plus minusve depresso; operculo internè rubro, externè submargaritaceo.

Hab. apud ins. Philippinas. H. Cuming legit.

Var. a. *T. aurantiâ, magnâ, angulatâ.* Alt. .40; lat. .60. Sorso-gon, pr. Albay, ins. Luzon.

Var. b. *T. aurantiâ, minori.* Alt. .20; lat. .25. Sinait, Ilocos, ins. Luzon.

Var. c. *T. aurantiacâ, supernè rubrâ.* Misamis, ins. Mindanao.

Var. d. *T. aurantiâ; fasciâ rubrâ in medio super angulum anfractuum.* Abulug, pr. Cagayan, ins. Luzon.

Var. e. *T. aurantiâ, fasciis albis binis ornatâ.* St. Nicholas, ins. Zebu.

Var. f. *T. aurantiâ, supernè pallidè roseâ.* Abulug, pr. Cagayan, ins. Luzon.

From the large, somewhat angulated, orange variety, down to the more globose and small varieties, the gradation is so slow that it is impossible to find a line of demarcation sufficiently distinct to admit of specific separation, although the two extremes differ considerably in general appearance.

HELICINA SIMILIS, Sow. jun., Thes. Conch. *Hel. testâ H. politæ simillimâ, sed impolitâ, concentricè leviter striatâ, fuscâ.*

Hab. apud insulam Guadaloup. Mus. Cuming.

HELICINA PARVA, Sow. jun., Thes. Conch. f. 82. *Hel. testâ H. politæ simillimâ, sed magis rotundatâ, labio externo minimè depresso.*

Hab. Argao, ins. Zebu. H. Cuming legit.

Found on leaves of bushes, and differs only from the smaller varieties of *H. polita* in being globular, and having the outer lip not at all depressed above.

HELICINA GUADALOUPENSIS, Sow. jun., Thes. Conch. f. 65. 66.

Hel. testâ lævi, depressâ, subangulatâ, concentricè leviter striatâ; columellâ ad basin subnodosâ; labio externo crasso, reflexo; anfractibus gradatim crescentibus, supra infraque subventricosus; operculo fusco.

Hab. apud insulam Guadaloup. Mus. H. Cuming.

Var. a. *T. rubrâ, lutescente, majori.* Alt. .35; lat. .60.

Var. b. *T. pallidè brunneâ, minori.* Alt. .20; lat. .35.

A memoir on the family of *Touracoos*, by Dr. E. Ruppell, was next read. In this memoir the author characterizes the following two new species of the genus *Chizærhis* from Abyssinia:—

CHIZÆRHIS PERSONATA. *Chi. regione ophthalmicâ, genis, mento et gulâ, pennis denudatis, cute nigricante, vibrissis brevissimis vestita; pileo crista plicatilis, plumis laxis, elongatis, colore mu-*

rixa; *nucha*, *regione parotica*, *juguloque albidis*, *jugulo et pectore viridi-glaucis*; *abdomine et tibiis rufo-cervinis*; *auchenio*, *dorso et alis cæsio-umbrinis*, *rectricibus olivaceis*; *caudâ elongatâ, subrotundatâ, suprâ cinereâ, infrâ luteo-virenti*, *rostro et pedibus nigris*; *iride albo-cinerascente*.

The most characteristic peculiarity in the present species, observes Dr. Rüppell, consists in the absence of feathers on the face and throat, the skin of these parts presenting only small scattered hairs, and apparently being of a blackish purple colour. The feathers of the upper surface of the head are elongated, and have the plumelets soft and flowing; they no doubt are erectile, and form a crest at the will of the bird. The two sexes agree perfectly, both in size and colouring. The dimensions in French measure are as follow:—

	in.	lin.
Total length from the tip of the beak to the tip of tail .	19	0
Tail	10	0
Length of the beak, measuring along the upper curvature	1	1
Greatest height of the two mandibles	0	7½
Length of the wing from the bend to the extremity of } the fourth wing-feather, which is the longest . . . }	8	0
Length of the tarsus	1	6
Length of the middle toe, including the nail	1	10

CHIZÆRHIS LEUCOGASTER. *Chi. pileo crista plicatilis, plumis apice truncatis, capite, gutture, collo, cervice, dorso et alis cæsio-umbrinis*; *rectricibus medianis nigro-marginatis, remigibus dimidio basali albis, dimidio apicali umbrino-nigris*; *caudâ subrotundatâ, suprâ et subtus nigrâ, fasciâ albâ latâ transversâ*; *rectricibus duabus intermediis cæsio-umbrinis*; *abdomine et tibiis albis*; *rostro et pedibus nigricantibus, iride umbrinâ*.

A peculiarity in this species consists in the truncated form of the feathers which constitute the crest. Both sexes agree in size and colouring. The dimensions are as follow:—

	in.	lin.
Total length	18	9
Tail	9	9
Beak	0	11½
Height of beak	0	6½
Length of the wing to the end of the fifth wing-feather	7	9
Tarsus	1	8
Middle toe, including the nail	1	10

A series of twenty-five Orang Outan skulls, from Borneo, which had been presented by James Brooke, Esq., together with fourteen skeletons, were exhibited, and also a collection of Fishes from Brazil, presented by J. Fremby, Esq., R.N.

January 25, 1842.

William Horton Lloyd, Esq., in the Chair.

A letter from the Society's Corresponding Member, Alexander N. Shaw, Esq., of the H. C. Civil Service, was read, in which that gentleman calls attention to the advantages which would ensue from the appointment of agents at different ports, for the transmission of animals for the Society, and requests to be informed what animals would be most acceptable from the part of India in which he is at present stationed, observing that he will endeavour to procure them, and should he succeed, will forward them free of expense to Bombay.

Mr. W. D. Cooper communicated to the Meeting some notes, by T. S. Thomson, Esq., relating to the habits of the *Bassaris astuta* of Lichtenstein. These notes are confirmatory of the observations of Mr. Charlesworth, made at a former meeting of the Society*. The animal, Mr. Thomson has been informed, is found in most parts of the republic of Mexico, but is not known beyond the habitations of man. Besides fowls, butchers' meat, &c., it will eat bread, fruit, and sugar; it breeds principally in outhouses, and particularly in neglected spots, producing three or four at a birth. Sometimes it is tamed, and used like the domestic cat to destroy rats, mice, &c.

Mr. Gould exhibited several Australian Mammals, from his own collection, which he considered to be new to science. The first to which he drew attention was a species of the genus *Macropus*, as now restricted, which, from the sooty black colouring of the face, he proposed to describe under the name

MACROPUS MELANOPS. *Macr. vellere molli obscure griseo; dorso, collo, plagæque magnâ ad basin femoris, fuliginoso-lavatis; lateribus corporis indistinctè fulvo tinctis; capite fuliginoso; rhinario nigro; auribus intus pilis albis vestitis, extus pilis albis, nigro irroratis, ad basin nigris; gulâ pectoreque albescentibus; tibiis tarsisque fusco-albis, digitis nigris; caudâ robustâ, suprâ fuliginoso-fusca, subtus pallidiore, dimidiâ apicali nigra.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	33	0
— caudæ.....	20	6
— tarsi digitorumque.....	11	9
— ab apice rostri ad basin auris....	5	9
— auris.....	3	9

* Proceedings for July 13, 1841, p. 60.

The most striking character in this species is the general deep hue of the fur of the upper parts of the body and neck; the colour may be described as sooty grey, but having moreover a brownish tint; the whole upper surface and sides of the head are nearly black; on the sides of the body and outer side of the hind legs, at the base, a very faint fulvous tint is observable; a large space on the haunch is of the same deep hue as the back; the throat and chest are whitish, the visible portion of the hairs on these parts being white; at the base, or next the skin, they are of a deep grey colour, and so are those on the abdomen; but here, though the hairs are tipped with white, the grey tint shows itself to a greater degree. The ears are thickly clothed with long white hairs on the inner side; externally they are pencilled with black and white, in about equal proportions, but at the base they are clothed with the same dense fur as that of the head, and this is black. The fore-legs, like the outer surface of the ears, are pencilled with black and white, the black becoming more conspicuous towards the toes, which are covered with black hairs. The hind-legs and tarsi are chiefly of a brown-white hue, but on the toes there is a considerable admixture of black; the hairs which cover the nails and the sides of the toes are almost entirely black. The tail is of the same colour as the body at the base, and has the apex black; the portion covered with black hairs is rather less than that clothed with the paler fur.

The following new Australian Mammals were also characterized by Mr. Gould:—

BELIDEA ARIEL. *Bel. pallidè cinerea, lineâ dorsali, a basi rostri ferè usque ad basin caudæ extensâ, circulo interrupto ad basin auris, membrandque laterali suprâ nigrescentibus, hac ad latera flavescenti-albâ; corpore subtùs pallidè flavo; caudâ gracili ad apicem nigrâ; auribus mediocribus; pedibus pallidis.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	6	0
———— caudæ	7	0
———— auris	0	8
———— ab apice rostri ad basin auris	1	3½

Two specimens of this species of Flying Phalanger were received by Mr. Gould from Port Essington. In size and proportions it approaches most nearly to the *Belidea breviceps*, being considerably less than the *Petaurus sciureus* of authors; but it is readily distinguished by its general pale colouring, and more especially by the pale yellow tint of the under parts of the body. The tail is slender as in *B. breviceps*, Waterh.; the fore and hind-feet are of a pale yellowish hue in one specimen; in the other the fore-feet have a pale brownish tint: a narrow black mark, commencing between the eyes, runs along the back, and extends nearly to the root of the tail; a narrow blackish line surrounds the eyes, and a black ring encircles the base of the ears, but is interrupted under the ear, which is sparingly clothed with minute hairs, excepting at the base externally, where they are covered with

fur like that on the head, and which is of a black colour, forming a portion of the dark ring before mentioned; and on the hinder margin of the ear, at the base, is a fringe of pale yellowish hairs. The upper surface of the head is of a paler hue than the upper parts of the body, which are of a pale ash-colour, slightly tinted with yellowish; the upper surface of the lateral membrane is blackish, and so is the anterior portion of the fore-arm and region of the wrist; a dusky tint is also observable on the posterior part of the hind-leg.

MUS PENICILLATUS. *Mus griseo-fuscus, vellere ferè ut in M. decumano; corpore subtùs pedibusque albis flavo lavatis; auribus mediocribus, posticè subemarginatis; caudà corpore capiteque paulo longiore, gracili, dimidià apicali pilis longis nigris vestitá.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin . . .	7	3
— caudæ	7	9
— ab apice rostri ad basin auris . . .	1	5½
— tarsi digitorumque	1	8
— auris	0	7¾

Hub. Port Essington.

This species of Rat is rather less than the *Mus decumanus*; in the character of its fur it nearly resembles that animal, but the hairs are rather more adpressed; the colouring of the upper parts of the body also nearly resembles that of *M. decumanus*; there is, however, a rusty tint in the region of the occiput and on the back of the neck. Around the angle of the mouth, the chin, throat, and all the under parts of the body, as well as the feet and inner side of the legs, are white, with a faint yellow tint, which might be described as cream-colour; and the hairs on these parts are of an uniform colour to the roots, excepting on the chest, where they are grey next the skin. The tail is long and slender, sparingly clothed at the base with minute bristly hairs, as in most species of the genus; but about the middle of the tail the hairs assume a black colour, and are longer, and towards the apex they soon attain a considerable length, measuring at and near the tip half an inch or more. The ears are narrower than usual, somewhat pointed, and slightly emarginated behind; they are sparingly clothed with minute hairs.

MUS HIRSUTUS. *Mus vellere hirsuto, corpore suprà fuscescente pilis nigris crebrè commixtis, subtùs fulvenscens, fusco rufoque tincto; auribus mediocribus; caudà longá piis nigris, aliquanto longis, vestitá; dimidià apicali pilis longioribus, his ad apicem caudæ rufescentibus.*

Of this large and curious Rat, Mr. Gould regretted that he did not possess a perfect skin; the somewhat mutilated skin which he exhibited, together with a perfect skeleton, however, displayed characters very distinct from other species of *Mus*. Compared with the known species of that genus, he observed it approached most nearly to the *Mus giganteus* of Hardwicke; it is equal in size to that animal, and has the same coarse shaggy fur, but is readily distinguished by its well-clothed tail, the hairs on this part being much longer than

usual in the genus, especially on the apical half, where the scales are hidden by them; those at the point of the tail measure upwards of an inch in length, and at the distance of two inches from the point they average about an inch in length; on this part they have a rusty hue, but on the remaining portions they are black. On the upper parts of the body the shorter hairs are of a yellowish brown colour, but the longer interspersed hairs being numerous, and of a black colour, give a deep general tint to these parts. The under parts of the body are of a rusty yellow colour, tinted with brownish on the neck and chest, and having a more decided rust-colour on the abdomen.

The skull approaches that of *Mus giganteus* in general form, but is rather narrower and longer; the palatal portion is broader, and the incisive foramina are shorter, terminating posteriorly, about one-eighth of an inch anterior to the foremost molars; whilst in *M. giganteus* these foramina terminate in a line with the front molars, or rather behind that line; the nasal bones are longer and rather narrower, and the occipital portion of the cranium is decidedly smaller. The principal dimensions, taken from the skeleton, are as follow:—

	in.	lin.
Length from tip of nasal bones to end of sacral vertebræ	10	4
Length of tail	13	0
Length of tarsus and claws	2	8½
Length of skull	2	6½
Width of ditto	1	3¾
Length of nasal bones	1	0½
Distance between incisors and molars of the upper jaw	0	9½
Width between molars	0	3½
Length of incisive foramina	0	5
Width of occiput	0	8

MUS DELICATULUS. *Mus supra pallidè fusco-flavus; corpore ad latera flavescente, subtùs albo; caudâ mediocri supra fuscâ, subtùs ad basin albescenti; auribus parvulis; pedibus gracilibus, albis.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin	2	5
caudæ	2	2
tarsi digitorumque	0	8
ab apice rostri ad basin auris	0	8
auris	0	3¾

In colouring the present species greatly resembles the *Mus sylvaticus* of Europe, but it is a trifle paler; its size is less than that of the common mouse (*Mus musculus*, Auct.). The fur is soft and short; that on the upper parts of the body is of a pale yellow-brown colour. The sides of the body are of a delicate yellow tint, and the lower parts of the sides of the muzzle, the chin, throat, and whole under parts, as well as the feet, are pure white; along the mesial line of the abdomen and on the throat the hairs are of an uniform colour to the base. The feet are slender, and the ears are rather

small. The tail is slender, and nearly equal in length to the head and body.

Two specimens exhibiting the above characters were exhibited by Mr. Gould.

The reading of Prof. Owen's memoir on the Myology of the Apteryx was commenced.

February 8, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

Some notes on the habits of the Horned Screamer (*Palamedea cornuta*, Linn.), by William Martin, Esq., Secretary to the Clifton Zoological Gardens, were read.

These notes were communicated by the President, the Earl of Derby, and are drawn up from observations made upon a specimen of the *Palamedea* living in the Clifton menagerie.

"The Horned Screamer was presented to the Society early in June 1839, by Capt. Rees of Bristol. On its arrival in this country it was exceedingly thin and weak. It had been fed during the voyage principally upon Indian corn, but had a little chopped boiled meat occasionally. The weather being very mild, it was placed in a turfed aviary, used generally for pheasants, some water-cresses and other aquatic plants being procured; but it was soon evident that we had not discovered a proper substitute for its natural food. Thinking one day that it manifested a desire to get at some roses which were trained upon the aviary, I gave it one of the flowers, which it ate eagerly. It was then thought, that, as it was so domesticated and familiar, the feathers of one wing should be cut, and the bird turned loose into the garden and watched, to see what plants it would prefer. The rose-trees were the favourite plants, the flowers, young shoots and leaves being eagerly eaten. Since this time it has always been turned out every morning in mild weather to roam about the garden, and it is very fond of creeping up close to the gardeners, and watching them at work, although it does not appear to be from any desire to obtain worms or insects. It seldom wanders very far from its aviary, and in the afternoon is always found waiting to be let in. In winter it is allowed its liberty in the parrot aviary, which is heated by one of the Arnott stoves, and close to which it may generally be found. Even in moderately sharp weather, if it be dry, we find it better to let it go out for a short time; but then, instead of creeping leisurely about, it bustles off to its favourite plants, and very soon returns; but it will not bear confinement in a cage. At the present time *lettuce* is its principal food, but it has also Indian corn, hemp-seed, sopped bread, and a little boiled sheep's head. Small stones seem also necessary, and it is very fond of swallowing small pieces of the coal used in the stove, which is anthracite. Owing to the difficulty and expense of procuring a sufficient quantity of lettuce during the frost of last winter and that of the year before, the poor bird became very thin and weak, but quickly rallied upon again getting this food. In the summer, when on the lawns, it will eat grass, which it chips off with its beak in a very singular

manner. I have tried it several times with a frog, but it has always been refused. When we first had it the horn upon the head was about four inches long; but as it used to stand so close to the stove, it became burnt down to about an inch, and is now grown again considerably.

"The spurs upon the elbows of the wings are nearly two inches long, and of amazing strength and hardness; they are truly formidable weapons. We have several varieties of dogs, which are kept in single kennels, in different parts of the garden, but they always retreat upon the approach of the Screamer; and whilst the bird continues close, nothing will induce them to come out, at least those that have once felt the spur. I have several times seen it standing close to a door of a kennel, with its head erect and looking very proud, making a sound which one could only look upon as a challenge to the dog to come forth. As the mode of attack is so sly and unexpected, none are at first prepared for it. Throwing its neck and head backwards and forwards, and uttering at the same time a low note, it advances sideways up to the dog, and when close enough turns half-way round, and quietly raising its wing, delivers such a blow that no dog that we have will face it a second time. It is not meant that a dog could not be made to resent such an attack, but only that of their own accord they seem unwilling to do so.

"It is, however, exceedingly familiar, and would become attached to any one that would notice it kindly, and with me will often make a kind of purring noise when being patted and caressed. Still I have seen it run after children when they have been teasing it.

"On one or two occasions it has recovered the use of its wing sooner than expected, but it never flew beyond the garden—alighting upon the top of its aviary, flying off again, wheeling round in a circle and returning. In their wild state I should consider these birds good flyers; their long wings and light bodies, with a most complete apparatus of external air-cells, would conduce to that result. I hardly know why it should be called a screamer; no noise that I have ever heard it make could be called a scream. It has certainly a tolerably sharp cry, and also a lower note or cry, somewhat resembling the trumpet-note of a peacock, but not so loud; both appear to be notes of pleasure and satisfaction, and may generally be called forth in the following manner. If for instance the bird is on the lawn, and any of those known to it should pass close by, it will utter one or two of the lower notes, and if encouraged by the person endeavouring to imitate the same note, it will utter two or three more, and finish with one of the shrill notes; it will then often lie down to be patted and caressed. Its walk is rather ludicrous, partaking both of stateliness and awkwardness. The head is carried high and well, but as its toes are so long it is compelled to raise each foot very high, in order to get it clear of the other, and this produces the appearance described. In standing, the toes of one foot are crossed a good deal over those of the other.

"It has evidently more confidence in man, and seems also to have more intelligence than most birds."

The reading of Professor Owen's memoir on the Myology of the *Apteryx* was continued.

Mr. Gould then brought before the notice of the Meeting some additional ornithological novelties from Australia, and characterized an *Artamus*, conspicuous for the white colouring of the rump, as

ARTAMUS LEUCOPYGIALIS. *Art. capite, gula, et dorso fuliginoso-cinereis; pectore, partibus inferioribus, et uropygio albis; rostro pallide cæruleo-cinereo.*

Head, throat and back sooty grey; primaries and tail brownish black, washed with grey; chest, all the under surface, and rump, pure white; irides brown; bill light bluish grey at the base, black at the tip; legs and feet mealy greenish grey.

Total length, $5\frac{1}{2}$ inches; bill, $\frac{1\frac{3}{8}}{16}$; wing, $5\frac{1}{8}$; tail, $2\frac{1}{2}$; tarsi, $\frac{5}{8}$.

Hab. Australia.

A new *Pitta*, being the third species of that form from the Australian continent, as

PITTA IRIS. *Pitt. capite, collo, pectore, abdomine, lateribus, et femoribus nigerrimis; fasciâ superoculâ, ad occiput ductâ ferrugined; corpore suprâ, alisque ex aureo viridibus, humeris metallice cæruleis et fasciâ inferiore lazulinâ ornatis.*

Head, neck, breast, abdomen, flanks and thighs deep velvety black; over the eye, extending to the occiput, a band of ferruginous brown; upper surface and wings golden green; shoulders bright metallic cærulean blue, bordered below with lazuline blue; primaries black, passing into olive-brown at their tips; the third, fourth, fifth and sixth having a spot of white about the centre of the feather; tail black at the base, green at the tip, the former colour running on the inner web nearly to the tip; rump-feathers tinged with cærulean blue; lower part of the abdomen and under tail-coverts bright scarlet, separated from the black of the abdomen by yellowish brown; irides dark brown; bill black; feet flesh-colour.

Total length, 7 inches; bill, $1\frac{1}{8}$; wing, 4; tail, $1\frac{3}{4}$; tarsi, $1\frac{1}{2}$.

Hab. Cobourgh Peninsula, north coast of Australia.

Mr. Gould then pointed out the generic characters of two new genera of Finches, the first of which he proposed to designate

Genus EMBLEMA.

Rostrum ferè quàm caput longum, conicum (ut in genere Ploccus). Alæ mediocres; remige primâ parvulâ, quatuor proximis inter se æqualibus; tertiariis elongatis. Cauda mediocris, et ferè quadrata, vel paululùm rotundata. Pedes plantigradi, digitis gracillimis; digito intermedio externis longiore, illis inter se æqualibus.

EMBLEMA PICTA. *Emb. facie et gulâ saturatè miniaceis; vertice et corpore suprâ fuscis; pectore et corpore subtùs nigris crebrè alboguttatis, abdomine medio miniaceo adperso.*

Face and throat deep vermilion red; the base of all the feathers of the throat black, giving that part a mingled appearance of black and red; crown of the head, all the upper surface and wings, brown; rump deep vermilion-red; tail dark brown; chest and all the under surface jet-black, the flanks numerously spotted with white, and the centre of the abdomen dashed with vermilion-red; feet light red; upper mandible black, under mandible scarlet, with a triangular patch of black at the base.

Total length, $3\frac{1}{8}$ inches; bill, $\frac{9}{16}$; wing, $2\frac{1}{4}$; tail, $1\frac{5}{8}$; tarsi, $\frac{5}{8}$.

Hab. The north-west coast of Australia.

From the collection of B. Bynoe, Esq.

And the second,

Genus POËPHILA.

Gen. char.—*Rostrum* ad basin tumidum, et igitur ferè tam latum et profundum quàm longum. *Alæ* mediocres, remige primâ parvulâ, secundâ tertiâ quartâ et quintâ inter se ferè æqualibus; digitis gracilibus, medio externis longiore, illis inter se æqualibus; digito postico, medio valdè brevior. *Cauda* cuneiformis, rectricibus duabus intermediis productis.

This form is nearly allied to *Erythura* and *Estrellda*.

Type, *P. acuticauda* (*Amadina acuticauda*, Gould in Proc. Zool. Soc., Part VII. p. 143).

POËPHILA PERSONATA. *Poë. rostro ad basin fasciâ irregulari nigerrimâ circumdato, vertice, dorso, alis, caudâque pallidè cinnamomino-fuscis.*

Base of the bill surrounded by an irregular ring of deep velvety black; crown of the head, upper surface and wings, light cinnamon-brown; lower part of the abdomen banded with deep velvety black; lower part of the rump and under tail-coverts white; upper tail-coverts white, striped longitudinally with black on the outer side; tail graduated, and of a deep blackish brown; irides red; bill bright orange; legs and feet flesh-red.

Total length, $3\frac{1}{8}$ inches; bill, $\frac{3}{8}$; wing, $2\frac{1}{4}$; tail, 2; tarsi, $\frac{9}{16}$.

Hab. The northern parts of Australia.

Mr. Gould then characterized two new species of the genus *Ptilinopus*, Swainson, as *P. Swainsonii* and *P. Ewingii*; the first in honour of the founder of the genus, and the second in honour of the Rev. T. J. Ewing, of Van Diemen's Land.

PTILINOPUS SWAINSONII. *Ptil. fronte et vertice splendide coccineis, hoc colore lineâ angustâ flavâ nisi apud frontem cincto; pectore sordide viridi, singulis plumis ad apicem bifidis, more furculæ, cujus apices maculâ triangulari argenteo-cinereâ notantur; abdomine medio aurantiaco; caudæ apice latè flavissimo.*

Forehead and crown deep crimson-red, surrounded, except in front, with a narrow ring of light yellow; back of the neck greyish green; all the upper surface bright green tinged with yellow, the green becoming deep blue towards the extremities of the tertiaries, which

are broadly margined with yellow; primaries slaty grey on their inner webs, green on the outer, very slightly margined with yellow; tail deep green, largely tipped with rich yellow; throat greenish grey, stained on the chin with yellow in some specimens; in others the chin is white; breast dull green, each feather forked at the end, and with a triangular silvery grey spot at either extremity; flanks and abdomen green, with a large patch of orange-red in the centre of the latter; under tail-coverts orange-yellow; thighs green; irides reddish orange; bill greenish black, horn-colour at the tip; feet olive-brown.

Total length, 9 inches; bill, $\frac{5}{8}$; wing, $5\frac{3}{4}$; tail, $3\frac{3}{4}$; tarsi, $\frac{5}{8}$.

Hab. The brushes of the River Clarence and Moreton Bay.

PTILINOPUS EWINGII. *P. fronte et vertice roseis, hęc colore lineę flavę nisi ad frontem cincto; pectore virescenti-cinereo plumis bifidis, et ad apicem pallidę cinereis; fasciá infra pectorali pallidę sulphurę; abdomine medio saturatę aurantiaco, cum lunulá centrali helvo-cęruleá; caudę rectricibus ad apicem flavis, non sine tincturá viridi presertim in rectricibus duabus intermediis notandá.*

Forehead and crown of the head rose-pink, bordered, except in front, by a narrow line of yellow; back of the head and neck greenish grey; all the upper surface bright green, passing into deep blue on the tertiaries; primaries, secondaries and tertiaries slightly margined with yellow; tail largely tipped with yellow tinged with green, particularly on the two centre feathers; chin pale yellow; sides of the neck and chest greenish grey, each feather forked at the end and tipped with grey; below the chest an indistinct band of sulphur-yellow; flanks and lower part of the abdomen green; centre of the abdomen rich orange, in the middle of which is a lunar-shaped mark of lilac; under tail-coverts orange; thighs and tarsi green; irides reddish orange; feet olive.

Total length, $7\frac{3}{4}$ inches; bill, $\frac{3}{4}$; wing, $4\frac{5}{8}$; tail, 3; tarsi, $\frac{5}{8}$.

Hab. Port Essington.

Mr. Gould next instituted a new genus among the *Columbida*, under the appellation of

GENUS GEOPHAPS.

Gen. char.—*Rostrum* perbreve et robustum. *Oculi* cute denudatá circumdati. *Alę* perbreves et rotundatę, apicibus latis. *Tarsi* mediocres digitis longiores. *Digitus* internus paululüm cęteris longior.

Of this form a new species was described as

GEOPHAPS PLUMIFERA. *Geo. capite cristá occipitali ornato; hęc sic et vertice, colli lateribus, pectore et alarum puginá inferiore pallidę ferrugineis; gulá alternatim albo nigroque fasciato; pectore lunulis duabus albis inter se junctis cuspidemque mediam efficientibus, ornato.*

Lores and orbits naked, and of a yellowish red; head furnished with a lengthened occipital crest, which, with the crown, sides of the

neck and chest, and under part of the wing, is light ferruginous; chin black; throat banded alternately with white and black, the latter colour extending to the ear-coverts; on the chest two semilunar marks of white, which, meeting, form a point in the centre; middle of the abdomen light buff; under tail-coverts brown, with lighter edges; back of the neck, back, rump and upper tail-coverts, rufous brown; wings light ferruginous, with the basal half of the feathers silvery grey, the two colours separated by a transverse band of black; primaries rufous brown; secondaries rufous brown, with a large patch of bronzy purple towards their tips; tail black; bill black; feet reddish brown.

Total length, 7 inches; bill, $\frac{3}{4}$; wing, $3\frac{1}{8}$; tail, $2\frac{5}{8}$; tarsi, $\frac{7}{8}$.

Hab. The north-west coast of Australia.

From the collection of B. Bynoe, Esq.

A second genus of this tribe of birds was then characterized as

Genus OCYPHAPS.

Gen. char.—*Caput* cristâ occipitali elongatâ. *Alæ* paulò breves, remige tertiâ gradatim ad apicem coarctatâ. *Cauda* mediocriter elongata, et rotundata. *Tarsi* et *digitus* intermedius eadem longitudine. *Digitus* internus externo brevior.

Type, *Columba Lophotes*, Temm.

A second example of the genus *Pedionomus* was described as

PEDIONOMUS MICROURUS. *Ped.* à P. Torquato *diversus*, *staturâ minore*, *collo haud torque circumdato*, *caudâ ferè carente*.

Crown of the head, back and upper surface mottled with black, brown, and fawn-colour, the latter occupying the external edge of the feathers, and the black and brown forming alternate circular markings on each feather; throat, neck, chest and flanks dull fawn-colour; the feathers of the neck and chest blotched with brown; flanks marked with the same colour, assuming the form of bars; tail-feathers, which are almost invisible, marked the same as the back; centre of the abdomen and the under tail-coverts buffy white, without spots or markings; irides straw-yellow; bill yellow, passing into black at the point; feet greenish yellow.

Total length, $4\frac{1}{2}$ inches; bill, $\frac{11}{16}$; wing, $3\frac{1}{4}$; tarsi, $\frac{7}{8}$.

The above are the measurements of an old male.

Hab. Plains of the interior of South Australia.

Differs from *P. torquatus* in its smaller size, in the absence of the collar, and in the almost total absence of tail.

Mr. Gould also brought before the notice of the Meeting a new species of *Megapodius*, from the north coast of Australia, which he characterized as *M. Tumulus*, and read a very interesting account of its habits, which tends to confirm the opinion he had previously expressed, that *Megapodius Talegalla* and *Leipoa* form part of one great family of birds, whose range will be found to extend from the Philippines to Australia.

MEGAPODIUS TUMULUS. *M. capite*, et *cristâ saturatè cinnamomino-*

fuscis; nuchâ, et corpore subtilius saturatè cinereis; dorso, alisque cinnamomino-fuscis; tectricibus caudæ, crissoque saturatè castaneis; pedibus permagnis.

Head and crest very deep cinnamon-brown; back of the neck and all the under surface very dark grey; back and wings cinnamon-brown; upper and under tail-coverts dark chestnut-brown; tail blackish brown; irides generally dark brown, but in some specimens light reddish brown; bill reddish brown, with yellow edges; tarsi and feet bright orange, the scales on the front of the tarsi, from the fourth downwards, and the scales of the toes dark reddish brown.

Total length from 15 to 17 inches; bill from $1\frac{1}{8}$ to $1\frac{1}{4}$; wing from $9\frac{1}{2}$ to 10; tail from 4 to $4\frac{1}{2}$; tarsi from $2\frac{1}{2}$ to $3\frac{1}{8}$.

Hab. Cobourg Peninsula, on the north coast of Australia.

February 22, 1842.

William Horton Lloyd, Esq., in the Chair.

The reading of the Second Part* of Prof. Owen's Monograph on the *Apteryx australis*, Shaw, including its Myology, was completed. The following is the descriptive portion of this communication :—

MUSCLES OF THE SKIN.

No detailed description of the muscles of the skin in Birds has been given either in the systematic works on comparative anatomy, or in particular treatises ; these muscles appear indeed in general to be too irregularly or too feebly developed to have attracted much attention ; brief notices are recorded of some peculiarly developed cutaneous muscles, as those which spread the plumes of the peacock, and erect the hackles of the cock ; the compressors of the subcutaneous air-cells are noticed in the anatomical account of the Gannett (*Sula Bassana*†), and a more constant cutaneous muscle, viz. that which supports the crop in gallinaceous birds, is briefly mentioned and figured by Hunter‡.

In the *Apteryx*, the subject of the present Myography, the cutaneous system of muscles presents a more distinct and extensive development than has hitherto been met with in the class of Birds—a condition which is evidently connected with the peculiar thickness of the integument, and probably with the burrowing habits of the present species, which possesses in this structure the power of shaking off the loose earth from its plumage, while busy in the act of excavating its chamber of retreat and nidification.

Constrictor colli.—The whole of the neck is surrounded by a thin stratum of muscular fibres, directed for the most part transversely, and extending from an attachment along the median line of the skin at the back of the neck, to a parallel raphé on the median line of the opposite side : this muscle is strongest at its commencement or anterior part, where the fibres take their origin in a broad fasciculus from the outer part of the occipital ridge ; these run obliquely downwards and forwards on each side of the neck, but are continued uninterruptedly with those arising from the dorsal line of the skin above mentioned ; the direction of the fibres insensibly changing from the oblique to the transverse. The outer surface of this muscle is attached to the integument by a thin and dense layer of

* See Transactions of the Zoological Society, vol. ii. part 4. p. 257, Splanchnology and Osteology.

† Proceedings of Zoological Society, 1832, p. 91.

‡ In description of pl. 10, vol. i. of Physiological Catalogue of Hunterian Collection, by Owen, 4to. 1833–1841.

cellular tissue, devoid of fat; the under surface is more loosely connected with the subjacent parts by a more abundant and finer cellular tissue.

Use.—To brace the cervical integument, raise the neck feathers, and in combination with the following muscle to shake these parts.

Sterno-cervicalis.—*Origin.* Fleishy, from the posterior incurved process of the sternum, from the ensiform prolongation and middle line of the outer and posterior surface of the same bone. *Insertion.* The fibres pass forward, and diverging in gently curved lines, ascend upon the sides of the broad base of the neck, and are inserted by a thin but strong fascia into the median line of the dorsal integument. This muscle is a line in thickness at its origin, but becomes thinner as it expands; the anterior part is covered by the posterior fibres of the *constrictor colli*.

Use.—To retract the skin of the neck, and brace that portion which covers the base of the neck; when these are the fixed points, it will depress and protract the sternum, and thus aid in inspiration.

Obs.—In its position and the general course of the fibres, this muscle is analogous to that which supports and assists in emptying the crop in the common fowl; but the œsophagus presents no partial dilatation in the *Apteryx*, and the situation of the crop is occupied by a large mass of fat enclosing one or two absorbent glands.

Sterno-maxillaris.—This muscle appears at first view to be the anterior continuation of the preceding, but is sufficiently distinct to merit a separate description and name. *Origin.* Fleishy; from the anterior part of the middle line of the sternum. *Ins.* It passes directly forwards along the under or anterior part of the neck, expanding as it proceeds, and gradually separating into two thin symmetrical fasciculi, which are insensibly lost in the integument covering the throat and the angle of the jaw. It adheres pretty closely to the central surface of the *constrictor colli*, along which it passes to its insertion.

Use.—To retract the fore-part of the skin of the neck, and also the head. Each lateral portion acting alone would incline the head to its own side: the whole muscle in action would bend the neck; but the movements of the head and neck are more adequately and immediately provided for by the appropriate deeper-seated muscles, and the immediate office of the present muscle is obviously connected with the skin. Nevertheless, in so far as this muscle acts upon the head, it produces the same movements as the *sterno-mastoideus* in Mammalia; and it is interesting to observe, that in the long-necked Ruminants (as the Giraffe), the sterno-mastoid muscles arise by a common origin, and the insertion is by an extended fascia into the angles of the jaw: I consider, therefore, that the sterno-mastoid is represented by the *sterno-maxillaris* in the *Apteryx*, the only bird in which this muscle has hitherto been described.

Dermo-transversalis.—The skin covering the dorsal aspect of the lower two-thirds of the neck, besides being acted upon by the *constrictor colli*, is braced down by a thin stratum of oblique and somewhat scattered fibres, which take their origins by fasciæ attached to

the inferior transverse processes of the sixth to the twelfth cervical vertebræ inclusive; the fibres pass obliquely upwards and backwards, and are inserted by a thin fascia into the median line of the skin, covering the back of the neck.

Platysma myoides.—The representative of this cutaneous muscle is a thin triangular layer of muscular fibres, taking their origin from the outer side of the ramus of the jaw, and diverging as they descend to spread over the throat, and meeting their fellows at a middle raphé of insertion beneath the upper larynx and beginning of the trachea, which they thus serve to compress and support.

Dermo-spinalis.—*Origin*. By a thin fascia from the ends of the spinous processes of the three anterior dorsal vertebræ. *Ins*. The fibres slightly converge to be attached to the integument covering the scapular region.

Dermo-iliacus.—*Origin*. Fleishy, from the anterior margin of the ilium. *Ins*. The fibres pass forwards and slightly converge to be inserted into the scapular integument.

Dermo-costalis.—A muscle resembling the preceding in form. *Origin*. Fleishy, from the costal appendages of the seventh and eighth ribs. *Ins*. The fibres pass forwards and join those of the preceding muscle, to be inserted into the scapular integument.

Obs. The three preceding muscles are broad and thin, but well-defined; they would appear to influence the movements of the rudimentary spur-armed wing through the medium of the integument, as powerfully as do the rudimental representatives of the true muscles of the anterior extremity.

There are also two muscles belonging to the cutaneous series, and inserted directly into the bones of the wing. One of these, the *dermo-ulnaris*, is a small, slender, elongated muscle, which takes its origin from the fascia beneath the *dermo-costalis*; its fibres pass backwards, and converge to terminate in a very slender tendon which expands into a fascia, covering the back part of the elbow joint. *Use*. To extend the elbow joint and raise the wing.

The *dermo-humeralis* is also a long and narrow strip, deriving its origin from scattered tendinous threads in the subcutaneous cellular tissue of the abdomen: it passes upwards, outwards and forwards, and is inserted fleshy into the proximal part of the humerus, which it seems to depress*.

* In Mammalia the cutaneous muscles form a more continuous stratum than in the *Apteryx* and other birds, and hence have been grouped together under the common term *panniculus carnosus*; they have also, in general, both their origins and insertions in the integument; but in Birds, in which the integument supports so extraordinary an abundance of the epidermic material under the form of feathers, the muscles destined to its especial motions require a more fixed attachment from which to act. The Rhinoceros, in which the integuments, from the thickness and density of its corium, is in a similar condition as regards the resistance to be overcome by the skin-muscles, presents an analogous condition of its *panniculus carnosus*, having it divided into several distinct muscles, most of which take their origin from bone or fasciæ attached to bone.

MUSCLES OF THE TRUNK.

A. On the Dorsal Aspect.

The muscles on the dorsal aspect of the vertebral column in Birds have only of late years received any attention from Comparative Anatomists: they have been mentioned rather than described by Tiedemann and Meckel: Carus has given a side-view of the superficial layer of muscles in the Sparrow-hawk; their best description is contained in the second edition of the '*Leçons d'Anatomie Comparée*' of Cuvier.

The muscles of the back are in general so feebly developed in birds of flight, that they were affirmed by Cuvier to be wanting altogether in the first edition of the '*Leçons*.' And this is almost true as respects their carneous portion, for they are chiefly tendinous in Birds of Flight. In the Struthious birds, and in the Penguin, in which the dorsal vertebræ are unfettered in their movements by ankylosis, these muscles are more fleshy and conspicuous; but they attain their greatest relative size and distinctness in the *Apteryx*.

From the very small size of the muscles which pass from the spine to the scapula and humerus in the *Apteryx*, the true muscles of the back, which correspond to the second layer of the dorsal muscles in Man, become immediately visible on removing the dorsal integuments and fasciæ; they consist of the *sacro-lumbalis*, *longissimus dorsi*, and *spinalis dorsi*. The first two muscles are blended together at their posterior origins, but soon assume the disposition characteristic of each, as they advance forwards.

The *sacro-lumbalis* is a strong and fleshy muscle, six lines in breadth, and three or four lines in thickness: it is, as usual, the most external or lateral of the muscles of the back, and extends from the anterior border of the ilium to the penultimate cervical vertebra. *Origin.* By short tendinous and carneous fibres from the outer half of the anterior margin of the ilium, and by a succession of long, strong, and flattened tendons from the angles of the fifth and fourth ribs, and from the extremities of the transverse processes of the third, second, and first dorsal vertebræ; also by a shorter tendon from the transverse process of the last cervical vertebra; these latter origins represent the *musculi accessorii ad sacro-lumbalem*; they have not hitherto been described in the class of Birds: to bring them into view, the external margin of the *sacro-lumbalis* must be raised. These accessory tendons run obliquely forward, expanding as they proceed, and are lost in the under surface of the muscle.

Insertion. By a fleshy fasciculus with very short tendinous fibres into the angle of the sixth rib, and by a series of corresponding fasciculi, which become progressively longer and more tendinous, into the angles of the fifth, fourth, third and second ribs, and into the lower transverse processes of the first dorsal and last two cervical vertebræ; the last insertion is fleshy and strong; the four anterior of these insertions are concealed by the upper and outer fleshy portion of the *sacro-lumbalis*, which divides into five elongated fleshy bundles, inserted successively into the upper transverse processes of

the first three dorsal and last two cervical vertebræ. These last insertions seem to represent the continuation of the *sacro-lumbalis* in Man, which is termed the *cervicalis descendens* or *ascendens*.

Longissimus dorsi.—This muscle is blended posteriorly both with the *sacro-lumbalis* and the *multifidus spinæ*, and anteriorly with the outer portion of the *spinalis dorsi*. It extends as far forward as the thirteenth cervical vertebra. *Origin*. From the inner or mesial half of the anterior margin of the ilium; from a strong aponeurosis attached to the spines of the eighth, seventh and sixth dorsal vertebræ; and from the transverse processes of the sixth, fifth, fourth and third dorsal vertebræ. *Ins*. The carneous fibres continued from the second origin, or series of origins, incline slightly outwards as they pass forward, and are inserted into the posterior articular processes of the first three dorsal vertebræ, receiving accessory fibres from the *spinalis dorsi*. The fasciculi from the transverse processes above mentioned incline inwards, and are also inserted into the posterior oblique processes of the vertebræ anterior to them; they soon begin to form a series of oblique carneous fasciculi, which become more distinct as they are situated more anteriorly; they are at first implanted in the vertebra next in front of that from which they rise, and then into the vertebra next but one in front; so that the most anterior of these tendons of insertions, to which can be traced any of the fibres of the main body of the *longissimus dorsi*, is that which is implanted into the thirteenth cervical vertebra; it is this fasciculus which is joined by the first or most posterior of the fasciculi of the *longus colli posticus*.

A series of oblique carneous fasciculi, evidently a continuation of, or part of the same system with those in which the *longissimus dorsi* terminates anteriorly, is continued between the upper transverse and the oblique processes of the vertebræ as far forward as the fourth cervical vertebra. This series of muscles seems to represent the *transversalis colli**, which is the anterior continuation of the *longissimus dorsi* in Mammalia, but it differs in being inserted into the oblique, instead of the transverse processes. In the direction of their fibres these fasciculi resemble the *semispinalis colli*, but are inserted into the oblique processes instead of the spines of the vertebræ. There are no other muscles with which they can be compared in the Mammalia than these two, with neither of which however do they precisely correspond; they seem however clearly to represent the second series of oblique muscular fasciculi in the trunk of Fishes. Rather than hazard expressing an incomplete or false analogy, I shall term these collectively the *fasciculi obliqui*.

Obliquus colli.—The fasciculi which rise from the first two dorsal and five lower cervical vertebræ are joined near their tendinous terminations by corresponding fasciculi of the *longus colli posticus*, and the strong round tendons continued from the points of convergence

* It is the '*grand transversaire*' of Cuvier, loc. cit. p. 282; but he describes it as passing from the anterior articular process of one vertebra to the posterior articular process of the next in front.

of these fascicles are inserted successively into the posterior oblique processes of the twelfth to the sixth cervical vertebra inclusive; the two fasciculi next in succession receive no accessory fibres from the *longus colli posticus*; the anterior one derives an extensive origin from the upper transverse processes of the eighth, seventh, and sixth cervical vertebræ. It must be observed, however, that the whole of each fasciculus is not expended in the strong round tendinous insertion above described; the portion which arises from the anterior ridge of the transverse process passes more directly inwards than the rest, and is attached to the tendon which terminates the fasciculus immediately behind; at the middle of the neck these accessory fibres approach to the character of distinct origins. The tendons of insertion, moreover, severally receive accessory fleshy fibres from the base of the oblique processes of the two vertebræ next behind; and thus they become the medium of muscular forces acting from not less than five distinct points, the power of which is augmented by each tendon being braced down by the oblique converging series of muscles immediately anterior to it. The fasciculus from the eighth cervical vertebra, besides its insertion by the ordinary tendon, sends off externally a small pyramidal bundle of muscular fibres, which soon terminates in a long and slender tendon which is inserted into the oblique process of the third cervical vertebra. Corresponding portions of muscle are detached from the two anterior fasciculi, which converge and terminate in a common slender tendon inserted into the posterior oblique process of the fourth cervical vertebra; and thus terminates this complex muscle or series of muscles.

Longus colli posticus.—The most internal or mesial of the superficial muscles of the dorsal aspect of the thoracic and cervical regions, called *cervicalis ascendens* by Meckel, and compared in part with the *spinalis dorsi* by Cuvier, cannot be the representative of either of these muscles, since they both co-exist separately with it in the *Apteryx*. At its posterior part the muscle in question seems to be rather a continuation of the *longissimus dorsi*; its anterior part offers a strong analogy with the mesial portion of the *complexus* and *biventer cervicis*; it appears to me to be evidently the analogue of the first, or mesio-dorsal series of oblique fibres of the muscular system in Fishes, but I shall adopt the name of the *longus colli posticus* applied to it by Cuvier*. It commences by long and slender, but strong, subcompressed tendons from the spines of the sixth, fifth and fourth dorsal vertebræ: these tendons gradually expand as they proceed forwards and downwards, and send off from their under surface muscular fibres which continue in the same course, and begin to be grouped into distinct fasciculi at the base of the neck: the first of these bundles joins the fasciculus of the *longissimus dorsi*, which is inserted into the posterior articular process of the thirteenth cervical vertebra; the succeeding fasciculi derive their origins from a broad and strong aponeurotic sheet attached to the spines of the fourth, third and second dorsal vertebræ: the second to the eighth fasciculi

* Leçons d'Anat. Comp., 2nd edit. vol. i. p. 284.

inclusive are compressed, broad and fleshy, and are inserted in the strong round tendons described in the preceding muscle, and attached to the oblique processes of the twelfth to the sixth cervical vertebræ inclusive: the ninth fasciculus, which forms the main anterior continuation of the *longus colli posticus**, is larger than the rest, and receives, as it advances, accessory fibres from the spinous processes of the seventh to the third cervical vertebræ inclusive, and is inserted, partly fleshy, partly by a strong tendon, into the side of the broad spine of the *vertebra dentata*. A slender fasciculus is detached from the mesial and dorsal margin of the *longus colli posticus*, near the base of the neck, which soon terminates in a long round tendon: this tendon is braced down by short aponeurotic fibres to the spines of the fifth to the second cervical vertebræ inclusive, immediately beyond which it again becomes fleshy, and expands to be inserted into the occipital ridge: this portion is the *digastrique* or *biventer capitis* of Cuvier.

Spinalis dorsi.—The displacement of the dorsal portion of the preceding muscle and the *longissimus dorsi* brings into view the *spinalis dorsi*, which is a well-developed and distinct muscle in the *Apteryx*. *Origin*. By two long, narrow, flattened tendons, from the spines of the eighth and seventh dorsal vertebræ: these pass obliquely downwards and forwards, expanding as they proceed, and terminate in two fasciculi of muscular fibres: the posterior one passes forwards beneath the anterior one, and inclining inwards and upwards divides into two portions, inserted by long tendons into the spines of the second and first dorsal vertebræ; it then sends a few fibres forwards to join the outer and anterior fasciculus, which is partly inserted by a slender tendon into the spine of the last cervical vertebra: the rest of the fibres of the second fasciculus join the portion of the *longissimus dorsi* which is implanted into the oblique process of the last cervical vertebra. The three inserted tendons of the *spinalis dorsi* are also the medium of attachment of fibres continued from the *multifidus spinæ*, beneath them.

Multifidus spinæ.—The series of muscles so called arises by fleshy fibres from the transverse processes of the five last dorsal vertebræ, which pass upwards, forwards and inwards, to be inserted by four flat tendons into the spines of the seventh to the third dorsal vertebræ inclusive, and by the tendons of the *spinalis dorsi* into the two anterior dorsal spines.

Obliquo-spinales.—The removal of this muscle brings into view a series of long, narrow, flat tendons, coming off from the spines of all the dorsal vertebræ, and slightly expanding as they proceed forwards and obliquely downwards and outwards; they become fleshy half-way from their origin, and are inserted into the posterior oblique and transverse processes of the six anterior dorsal vertebræ, and into the posterior oblique processes of the three last cervical vertebræ.

Interspinales.—The *interspinales* muscles do not exist in the

* 'Accessoires du long postérieur du cou,' Cuvier, *loc. cit.* p. 284.

region of the back, unless we regard the preceding oblique fibres as a modified representation of them. The most posterior fasciculus of muscular fibres, which is directly extended between the spinous processes, commences at the interspace of the spines of the two last cervical vertebræ, and the series is continued as far as the *vertebra dentata*.

Interarticulares.—The muscles which form the more direct continuation of the *obliquo-spinales* are continued from the posterior oblique or articular processes of one vertebra to the posterior articular process of the next in front.

Obliquo-transversales.—A third series of deep-seated intervertebral muscles is situated external to the preceding, and passes obliquely between the upper transverse process and the posterior articular process of the vertebra in front. These fasciculi appear to be a continuation of the *multifidus spinæ* in the neck.

Intertransversales.—There are also two series of short carneous fasciculi passing the one between the upper, and the other between the lower transverse processes.

Levatores costarum.—The first or most anterior of this series of muscles seems to represent the *scalenus medius*; it arises from both the upper and lower transverse processes of the last cervical vertebra, and expands to be inserted into the first rib, and into the upper and outer part of the second rib. The remaining *levatores* successively diminish in size as they are placed backwards; they come off from the transverse processes of the six first dorsal vertebræ; those from the first and second expand to be inserted into the rib attached to the same transverse process and to the one next behind; the rest have a single insertion: the angle and the part of the rib immediately beneath are the situations of their attachments.

B. In Front of the Neck.

Longus colli.—This muscle is represented by a series of closely succeeding long, narrow fasciculi, arising from the hæmapophyses of the sixth to the first dorsal and from the ten posterior cervical vertebræ; and sending narrow tendons, which increase in length as they are given off more anteriorly, obliquely forwards and outwards, to be inserted into the costal processes of all the cervical vertebræ save the two first: the highest or foremost tendon is attached to the tubercle at the under part of the ring of the atlas; but this tendon is also the medium of insertion of a fasciculus of muscular fibres arising from the upper transverse processes of the sixth, fifth, fourth, third and second cervical vertebræ.

The *Rectus capitis anticus major* is continued, or arises by as many distinct tendons, from the five superior tendons of insertion of the preceding muscle; these origins soon become fleshy, converge, and coalesce previous to their insertion into the base of the skull.

The *Rectus capitis anticus minor* is a strong fleshy triangular muscle arising from the anterior part of the body of the first four cervical vertebræ.

The *Rectus capitis lateralis* arises from the upper transverse processes of the sixth to the second cervical vertebra inclusive.

The *Intertransversales* are short, ill-defined muscles, blended with aponeurotic processes which pass from one transverse process longitudinally to the next in advance.

C. Muscles of the Tail.

Levator caudæ.—*Origin*. From the posterior and superior extremity of the ischium. *Ins*. Into the spines of the caudal vertebræ.

Adductor caudæ superior.—This muscle is smaller than the preceding, with which it runs parallel; it rises below from the posterior extremity or tuber of the ischium, and is inserted into the transverse processes of the caudal vertebræ.

Adductor caudæ inferior.—*Origin*. From the tuber ischii, and the ligament connecting this with the posterior extremity of the pubis. *Ins*. Into the transverse processes of the caudal vertebræ.

Depressor caudæ.—*Origin*. From the under part of the middle line of pelvis. *Ins*. Into the inferior spines of the caudal vertebræ.

D. Muscles of the Abdomen.

Obliquus externus abdominis.—*Origin*. Fleshy, from the second and third ribs, and by a strong aponeurosis from the succeeding ribs near the attachment of the costal processes, and from those processes. *Ins*. The fleshy fibres are continued from this aponeurotic origin to nearly opposite the ends of the vertebral ribs; they run almost transversely, very slightly inclined towards the pubis, to within half an inch of the linea alba, and there terminate, by an almost straight, parallel line, in their aponeurosis of insertion. The fibres of this aponeurosis decussate those of the opposite side, and adhere to the tendinous intersections of the *rectus* beneath. The aponeurosis from the last rib passes to be inserted into a strong ligament extending between the free extremities of the *ossa pubis*, leaving the abdomen behind the last rib defended only by the *internal oblique* and *transversalis*.

Obliquus internus abdominis.—*Origin*. From the whole of the anterior and outer surface of the pubis; aponeurotic from the upper part, fleshy for half an inch from the lower or ventral extremity: the carneous fibres run longitudinally, and cannot be distinctly defined from the *intercostales* on their outer border, or from the *rectus abdominis* on their inner or mesial border, which forms the medium of the insertion of the internal oblique.

Rectus abdominis.—I give this name to the mesial continuation of the preceding muscle, which arises by a strong, flat, triangular tendon from the lower or ventral extremity of the pubis and from the inter-pubic ligament: it soon becomes fleshy; the carneous portion is interrupted by three broad, oblique, but distinct aponeurotic intersections, and is finally inserted into the xiphoid and lateral processes of the sternum and the intervening fascia.

Transversalis abdominis.—A layer of loose, dark-coloured cellular

tissue divides the internal oblique from the transverse abdominal, except at its origin from the pubis, and for half an inch anterior to that part.

The *transversalis* then proceeds to derive carneous fibres from the inner surface of the vertebral ribs near their lower third; they pass obliquely upwards and forwards, and terminate by a regular, slightly concave line midway between their origins and the extremities of the ribs; a strong aponeurosis passes thence to the linea alba, but becomes thin at the pubic region, where a mass of fat is interposed between it and the peritoneum.

Diaphragm.—This muscle presents more of its normal mammalian character in this than in any other known bird. It is perforated by vessels only, in consequence of the non-development of the abdominal air-cells. The origin corresponding to that of the lesser muscle in Mammalia is by two strong and distinct, short tendinous pillars, from the sides of the body of the last costal vertebra; they are united by a strong tendon or fascia, forming the anterior boundary of the aortic passage. The tendinous pillars may be traced forward for some way in the central aponeurosis, expanding without crossing; they are then lost in that aponeurosis, which is perforated by the gastric arteries and veins; divides anteriorly to give passage to the gullet and the apex of the heart; the aponeurosis expands over the anterior part of the thoracic air-cells, and becomes, at its lateral circumference, the point of attachment of muscular fibres arising from the inner surface of the anterior ribs, and forming apparently a continuation of the *transversalis abdominis*.

Intercostales externi.—*Origin.* From the posterior edge and extremity of the costal processes or appendages. *Ins.* They run down to be inserted severally into the rib posterior to that to which the process affording them origin is attached. These processes are supported by strong triangular aponeuroses continued from their anterior and upper margins, severally, to the rib anterior to them.

A strong muscle arises from the anterior or costal angle of the scapula, and passes backwards to be inserted into the extremity of the third vertebral rib and its corresponding sternal portion. This muscle is a direct inspirator.

MUSCLES OF THE ANTERIOR EXTREMITY.

Serratus magnus anticus.—This muscle consists of three portions; the first and anterior portion arises by a short, strong aponeurosis from the last cervical rib, and is inserted into the lower edge of the anterior two-thirds of the scapula: the second middle portion arises from the lower end of the second vertebral rib, near the attachment of the costal process, and from the anterior margin of the same rib, and is inserted into the lower edge of the posterior two-thirds of the scapula: the third, posterior and smallest portion rises from the costal process of the third rib, and ascends to be inserted into the posterior extremity of the scapula.

This muscle is a direct inspirator: by drawing down the scapula it depresses the sternum through the medium of the strong coracoi-

deum, increases the angle between the vertebral and sternal ribs, and dilates the thoracic air-cells.

Levator scapulæ.—This seems to be the most anterior portion of the series of muscles which constitute the *serratus magnus*. *Origin*. Two flat fleshy strips from the inferior transverse and costal processes of the last and penultimate cervical vertebræ. *Ins*. Into the inner and upper side of the middle third of the scapula. It depresses as well as draws forwards the scapula, and thus aids the *serratus* in the action of inspiration.

Serratus anticus minor.—*Origin*. From the outer part of the costal process of the sternum. *Ins*. Into the posterior part of the base of the coracoideum.

Trapezius.—This flattened oblong quadrilateral muscle arises from the fascia, extending upon the back from the spinous processes of the posterior cervical vertebræ, and is inserted into the conjoined extremities of the scapula and coracoideum.

There is no representative of the *rhomboidei*.

Latissimus dorsi.—This muscle consists, as usual in Birds, of two portions, both of which have their origin from a continuation of the fascia (attached to the dorsal spines) which also gives origin to the trapezius: the fibres of the smaller and anterior slip converge to their insertion: the fibres of the posterior and broader strip are slightly twisted, the posterior edge being folded inwards as they also converge to join the preceding, and to be inserted with it into the posterior and inner side of the proximal extremity of the humerus.

Deltoides.—This is a single long and narrow triangular muscle, of which the base is attached to the conjoined extremities of the scapula and coracoid, and to the capsule of the shoulder-joint; the apical insertion is into the upper and outer third of the humerus, which this muscle directly raises.

Infraspinatus.—A muscle which may be compared either to the *infraspinatus* or *teres major* comes off from the lower margin of the anterior two-thirds of the scapula, passes behind the shoulder-joint, where it is closely attached to the scapula, and is inserted into the inner and posterior part of the proximal end of the humerus.

Musculi pectorales.—The pectoral muscles, which present their feeblest condition and lowest development in the *Apteryx*, are nevertheless similar in number and arrangement to those which in some birds of flight are known to outweigh all the other muscles of the body.

The *pectoralis major* is represented by two very thin triangular layers of muscular fibres, the anterior of which is three lines broad at its base, and is attached to the sternum immediately exterior to the perforation of that bone: the second, posterior, and somewhat narrower portion, rises immediately behind the preceding, from the osseous bridge separating the perforation from the notch; the two portions converge as they extend upwards and outwards to unite and be inserted into the anterior and internal surface of the proximal third of the humerus.

The *pectoralis medius seu secundus* is a similar, thin, feeble, but

broad triangular layer of carneous fibres ; which arise anterior to the preceding, just below the coracoid socket of the sternum, and converge as they wind over the shoulder-joint to be inserted into the upper surface of the proximal extremity of the humerus, of which they thus become an elevator.

The *pectoralis minor seu tertius* arises above and between the origins of the *pectoralis secundus* and the anterior strip of the *pectoralis major*, also partly from coracoid process ; its fibres converge to be inserted into the proximal end of the humerus, above and behind the *pectoralis major*.

Coraco-brachialis.—This is represented by two small strips of muscular fibres which rise from the posterior part of the coracoideum, and are inserted, one directly below the other, into the proximal third of the humerus.

Obs.—The close adherence to the ornithic type of the muscular system of the anterior extremity in the *Apteryx* is very remarkable, especially as regards the position and course of the *pectoralis medius*, since the physiological conditions of the circumstances attending that muscle are wanting in the *Apteryx*.

Here we have a true bird, exhibiting a remarkable modification of the whole ornithic structure, in reference to exclusively terrestrial life and nocturnal habits ; and we learn, I think, from this adherence to a typical organization, in a very rare exception, that the teleological conclusions respecting that typical construction, as it is manifested in the general rule, are in no ways affected by such an exception ; because the modification of one part necessarily affects that of many others, perhaps of the whole body. If, for example, the fixation and structure of the lungs require a broad sternum and concomitant modifications of the coracoid and scapula for the mechanical part of the respiratory process, then it may be more convenient for the levator of the humerus to rise below that bone from the sternum, and act in the due direction by a modification of its course ; although the locomotion of the bird may in no way be facilitated by the aggregation of muscle beneath the centre of gravity, nor the size of the levator be such as to render its particular position a matter of any consequence in regard to that centre.

The motions of the rudimental wing and its terminal hook would seem to be produced as much by the cutaneous muscles which converge to be inserted into the integument connected with it, as by the feeble representatives of the true wing-muscles above described.

MUSCLES OF THE POSTERIOR EXTREMITY.

The most superficial of the muscles on the outer side of the leg is that broad thin expanded one which combines the functions of the *tensor vaginæ* and *rectus femoris*, and also, according to some anatomists, as Cuvier and Meckel, those of the *glutæus maximus* ; since however it is exclusively inserted into the leg, I shall describe it with the other muscles moving that segment of the posterior extremity. The removal of this muscle, of the *sartorius*, and the *biceps cruris*, is requisite to bring into view the *glutæi*.

Glutæus externus.—The external *glutæus* (*glutæus medius* of Meckel), as in most Mammalia, is smaller than the middle or internal *glutæi*, but is relatively larger in the *Apteryx* than in birds of flight, in which it is described as the *pyriformis* by Cuvier. This muscle, however, besides its origin from the outside of the pelvis, overlaps part of the *glutæus medius*, and has its insertion into the femur at some distance below the great trochanter, all of which are marked characteristics of the *glutæus magnus*. *Origin*. It takes its origin from the superior margin of the *os innominatum*, extends along an inch and a quarter of that margin, directly above the hip-joint, and is chiefly attached by distinct short tendinous threads, which run down upon the external surface of the muscle: it rises also by carneous fibres from the external surface of the *innominatum* for three lines below the superior margin. *Insertion*. The fibres converge and pass into a tendinous sheet, beginning on the external surface of the muscle half-way down its course, which ends in a broad, flat, strong tendon, inserted into a rising on the outer side of the femur nearly an inch below the great trochanter. It abducts and raises the femur.

Glutæus medius.—*Origin*. A large triangular, strong and thick muscle, has an origin of three inches extent from the rounded anterior and superior margin of the ilium, and from the contiguous outer surface of the bone for an extent varying from an inch to eight lines. *Ins*. Its fibres converge to a strong, short, broad and flat tendon, implanted in the external depression of the great trochanter, having a bursa mucosa interposed between the tendon and the bony elevation anterior to the depression.

Glutæus minimus.—*Origin*. It rises below the preceding muscle from the anterior and inferior extremity, and from one inch and three-fourths of the inferior and outer margin of the ilium, and contiguous external surface, as far as the origin of the *glutæus medius*; also by some fleshy fibres from the outside of the last rib. *Ins*. These fibres slightly converge as they pass backwards to terminate in a broad flat tendon which bends over the outer surface of the femur, to be inserted into the elevation anterior to the attachment of the *glutæus magnus*.

A muscle which may be regarded either as distinct, or a strip of the preceding one, arises immediately behind it from half an inch of the outer and inferior part of the ilium; its fibres run nearly parallel with those of the *glutæus minimus*, and terminate in a thin flat tendon, which similarly bends round the outer part of the femur, to be inserted into the outer and under part of the trochanter immediately below the tendon of the *glutæus medius*. This muscle is peculiar to the *Apteryx*, and the preceding portion, or *glutæus minimus*, is absent in most birds.

Use.—All the preceding muscles combine to draw the femur forwards, and to abduct and rotate it inwards.

Iliacus internus.—This is a somewhat short thick muscle, of a parallelogrammic form, fleshy throughout; rising from the tuberosity of the *innominatum* in front of the acetabulum immediately below the *glutæus minimus*, and inserted at a point corresponding to the inner

trochanter, into the inner side of the femur near the head of that bone, which it thus adducts and rotates outwards. This muscle is present both in the Ostrich and Bustard, but Meckel says it is wanting in the Cassowary.—Arch. xiii. 261.

Pyramidalis.—The same kind of modification which affects the *iliacus internus*, viz. the displacement of its origin from the inner surface of the ilium to a situation nearly external, affects this muscle, which, from its insertion and triangular form, I regard as the analogue of the *pyramidalis*. It arises fleshy from the outer surface of the extended ischium for the extent of an inch, and converges to a broad flat tendon which is inserted into the *trochanter femoris* opposite, but close to, that of the *glutæus minimus*, which it opposes, abducting and rotating the femur outwards.

Adductor brevis femoris.—A small, long and slender muscle arises from the innominatum immediately behind the acetabulum, passes over the back part of the great trochanter, becomes partially tendinous, and is inserted into the back part of the femur in common with the following muscle.

Adductor longus.—A long broad and thin muscle, separated from the preceding by the ischiadic nerve and artery. The origin of this muscle extends one inch and a quarter from near the upper margin of the innominatum which is behind the acetabulum; it is joined by the preceding strip, and is inserted into the whole of the lower two-thirds of the back part of the femur.

Adductor magnus.—This broad and flat muscle has an extensive origin (two inches) from the outer edge of the ischium and the obturator fascia; its fibres slightly diverge as they pass downwards to be inserted into the back part of the lower half of the femur, and into the upper and back part of the tibia.

Obturator internus.—This arises from the inner side of the opposite margins of the pubis and ischium, where they form the posterior boundary of the *obturator foramen*, and from the corresponding part of the *obturator fascia*; the fleshy fibres converge in a slightly peniform manner to the strong round tendon which glides through the notch, separated from the rest of the foramen by a short, strong, transverse, unossified ligament, and is inserted into the posterior part of the base of the trochanter. In its length and size this muscle resembles the corresponding one in the Ostrich and other Struthious birds.

Gemellus.—This is represented by a single small fleshy strip arising from the margin of the *obturator foramen*, close to the emergence of the tendon of the *obturator internus*, with which it is joined, and co-inserted into the femur.

Quadratus.—I consider a broad fleshy muscle which arises from the pubis, below the *obturator foramen*, and which increases in breadth to be inserted into the femur internal and posterior to the obturator tendon, to be the true analogue of the *quadratus femoris*.

MUSCLES OF THE LEG.

Tensor vagina and *Rectus femoris*.—The largest and most remark-

able of the muscles which act upon the bones of the leg is that already alluded to as the most superficial of those on the outer side of the thigh. It has a broad, thin, triangular form, arises from the spines of the sacrum by a strong but short aponeurosis which soon becomes fleshy; the carneous fibres converge as they descend*, and pass into a thin aponeurosis at the lower third of the thigh: this is closely attached to the muscles beneath (*vastus externus* and *cruræus*), then spreads over the outer and anterior part of the knee-joint, is inserted into the patella, and into the anterior process of the head of the tibia.

Owing to the great antero-posterior extent of the origin of this muscle, its anterior fibres are calculated to act as a flexor, its posterior ones as an extensor of the femur: all together combine to abduct the thigh and extend the leg, unless when this is in a state of extreme flexion, when a few of the posterior fibres glide behind the centre of motion of the knee-joint.

Sartorius.—The origin of this muscle is proportionally as much extended as that of the preceding, with which it is posteriorly continuous: it comes off aponeurotic, from the anterior and superior margin or labrum of the ilium; the fibres soon become fleshy, and the muscle diminishes in breadth and increases in thickness as it descends: it is inserted by short and strong tendinous filaments obliquely into the anterior part of the tendon of the broad rectus, and into the upper and anterior end of the tibia. Its insertion is partly covered by the internal head of the *gastrocnemius*.

It bends and adducts the thigh, and extends the leg.

Biceps flexor cruris.—This is a single muscle, corresponding with the preceding in the characteristic modifications of its extended origin, in relation to the great antero-posterior development of the pelvic bones. It is exposed by the removal of the broad *rectus*. *Orig*. By a broad and thin aponeurotic tendon, which at first is confluent with that of the rectus, but soon becomes distinct. *Ins*. The fleshy fibres converge as they descend along the back and outer part of the thigh, and finally terminate in a strong round tendon, which glides through a loop formed here principally by a splitting of the tendinous origin of the *gastrocnemius externus*, and is inserted into the process on the outside of the fibula one inch from its proximal extremity. By means of the loop† the weight of the hinder parts of the body is partially transferred, when the leg is bent, to the distal end of the femur; and the biceps is enabled, by the same beautiful and simple

* They are not divided into a superficial and deep layer, as in the Ostrich, but form a simple stratum, as in the Cassowary. Meckel regards the rectus as entirely wanting in the Cassowary, supposing the present muscle to be the analogue of the *glutæus maximus* and *tensor vaginae* united. He says that Professor Nitzsch observed a like absence of the *rectus femoris* in the Emeu. The muscle which these anatomists call the *rectus* in other birds, is a strip of the *cruræus*, arising high up from the femur, and which in the Ostrich takes its origin from the *os pubis*.

† Which in the common fowl is formed chiefly by a ligament extended from the back of the outer condyle of the femur to the head of the tibia.

mechanism, to effect a more rapid and extensive inflection of the leg than it otherwise could have produced by the simple contraction of its fibres.

Semimembranosus.—*Origin*. From the side of the coccygeal vertebræ, and from the posterior end of the ischium; it crosses the superficial or internal side of the *semitendinosus*. *Ins*. Into the fascia covering the *gastrocnemius* and the inside of the tibia.

Semitendinosus.—This muscle arises from the posterior and outer part of the *sacrum* and *ischium*: it is a flattened triangular muscle, which receives the square *accessorius* muscle from the lower and posterior part of the femur. It gradually diminishes as it descends, and having passed the knee-joint, sends off at right angles a broad and square sheet of aponeurosis, which glides between the two origins of the *gastrocnemius internus*, and is inserted into the lower part of the angular ridge continued from the inside of the head of the tibia. The terminal tendon, continued from the apex of the muscle, then runs along the outer or fibular margin of the internal head of the *gastrocnemius*, and becomes confluent with the terminal tendon of that muscle.

Cruræus.—This is a simple but strong muscle: it commences at the upper and anterior part of the thigh by two extremities, of which the outer and upper one has its origin extended to the base of the trochanter; the inner and inferior comes off from the inner side of the femur, beneath the insertion of the *glutæus magnus*; the two portions blend into one muscle much earlier than in the Ostrich.

Gracilis.—On the inner side of the *cruræus*, but more superficially, lies a narrow, compressed, long muscle, which rises by two heads, one from the anterior and upper part of the femur, the other from the os pubis; both soon become blended together and transmit a broad thin tendon to be inserted into the lower and lateral part of the patella with the *cruræus*.

Vastus internus.—Two other muscles succeed the preceding, and rise beneath it from the inner and anterior part of the femur; they have a similar insertion, and obviously represent the *vastus internus*. The fibres converge to a middle aponeurosis, which increases to a strong short tendon, inserted into the upper and anterior projection of the tibia.

Popliteus.—This small muscle is brought into view when the superficial muscles of the leg which are inserted into the foot are removed. Its carneous fibres extend from the fibula inwards and downwards to the tibia. It is of relatively smaller extent than in the Cassowary.

Gastrocnemius.—This consists, as in other birds, of several distinct portions, the chief of which correspond with the external and internal origins of the same muscle in the Mammalia. The *gastrocnemius externus* has two strong, narrow, rather flattened tendinous origins, which are attached, one about a line below the other, to the external ridge above the outer condyle of the femur; they are continued into each other about an inch below their bony attachments, and thus form a loop or pulley (lined by a synovial sheath)

through which the tendon of the biceps glides; a strong ligament from the outer ridge of the fibula passes backwards to be attached to the confluence of the two tendons. The carneous fibres of the external *gastrocnemius* come off from the outer side of the inferior of these tendons, and from the fascia covering the outer surface of the muscles of the leg: they are continued in a somewhat penniform arrangement two-thirds down the leg, upon the inner surface of the muscle, where they end in a strong subcompressed tendon. This joins its fellow tendon, from the internal *gastrocnemius*, behind the ankle-joint, and both expand into a thick, strong, ligamentous aponeurosis, which extends over three-fourths of the posterior part of the tarso-metatarsal joint. The lateral margins of this fascia are bent down under the flexor tendons behind the joint, and become continuous with a strong ligamentous layer gliding upon the posterior surface of the distal condyles of the tibia, and attached to the tendons of the *peroneus* and *tibialis anticus*; the conjunction of the thickened tendons of the *gastrocnemii* with this deeper-seated layer of ligamentotendinous substance constitutes a trochlear sheath lined by synovial membrane, through which the flexor tendons of the toes glide. The synovial membrane of the ankle-joint is continued upwards half an inch above the articular surface of the bone, between it and the cartilaginous pulley. Below the joint the margins are inserted into the lateral ridges of the tarso-metatarsal bone, becoming gradually thinner as they descend, and ending below in a thin semilunar edge directed downwards.

The *gastrocnemius internus* has two powerful heads, one from the femur, the other from the tibia; the first arises fleshy from the internal condyle of the femur, expands as it descends, and receives additional fibres from the lower edge of the *accessorius semitendinosi*. About one-fifth down the tibia, this muscular origin, in the right leg, terminated in a short flattened tendon, which became attached to the inner side of the tibial portion of the *gastrocnemius internus*. In the left leg the tendon soon divided; one portion passed to the soleus, the other went to join the tibial portion of the *gastrocnemius internus*. The second head, which is separated from the preceding by the insertion of the *semitendinosus*, arises partly from the internal and anterior part of the strong fascia of the knee-joint by short tendinous fibres, which almost immediately become fleshy, and partly from a well-defined triangular surface on the inner and anterior aspect of the head of the tibia: the fleshy fibres converge, receive the tendinous slip from the femoral portion, and end on the inner side of the muscle in a strong flattened tendon, about two-thirds down the leg: this joins the tendon of the *gastrocnemius externus*, and is inserted as described above.

Soleus.—A slender flattened muscle arising from the inner and posterior side of the tibia, the tendon of which joins that of the *gastrocnemius internus*, behind the tarsal joint.

The *flexor perforatus* of the inner toe lies immediately anterior to the external *gastrocnemius*; it arises fleshy from the outer condyle of the femur, below the tendinous origin of that muscle, and terminates

in a slender flat tendon half-way down the leg. Its tendon glides behind the tarsal joint through the sheath of the *gastrocnemius*, expands beneath the metatarsal joint, perforates the flexor of the proximal phalanx of the third toe, and then bifurcates to be attached to the sides of the second phalanx, giving passage to the perforans tendon of the last phalanx.

Flexor perforatus of the middle toe.—This arises by very short tendons from the proximal end of the fibula, and from the ligament attached to the bicipital pulley: it continues to derive a thin stratum of fleshy fibres from the fascia covering the anterior surface of the muscles of the leg: the fleshy fibres terminate half-way down the leg in a flattened tendon, which pierces the tendon of the first *perforatus* of the middle toe, then runs forward to the outer toe, expands into a thick ligamentous substance beneath the proximal phalanx, and sends off two tendinous attachments on each side, one to the proximal, the other to the second phalanx, and is continued to be finally inserted into both sides of the third phalanx.

Flexor perforatus digitorum pedis is the strongest of the three; it arises fleshy from the posterior part of the distal extremity of the femur, above the external condyle, and also by a distinct flattened tendon, one inch in length, from the proximal end of the tibia: this tendon moreover receives the long slender tendon sent off obliquely across the front of the knee-joint from the *pectineus*, by which its origin is extended to the pelvis. This accessory tendon perforates the inner fleshy surface of the muscle, and is finally lost about half-way down the carneous part. Before the *flexor digitorum* is joined by the tendon of the *pectineus*, it subdivides posteriorly into four muscular fasciculi: the anterior division receives principally the above tendon. The muscle becomes wholly tendinous two-thirds down the leg; its tendon passes through the posterior part of the pulley of the *gastrocnemius*, and expands as it passes along the metatarsus: a thick ligamentous substance is developed in it, opposite the joint of the proximal phalanx of the second toe, into the sides of which it is inserted, dividing for that purpose, and giving passage to the two other flexor tendons of that toe. The second portion of the present muscle terminates in a tendon situated behind the preceding, which passes through a distinct sheath behind the tarsal joint, expands into a sesamoid fibro-cartilage beneath the corresponding expansion of the previous tendon, which it perforates, and then becomes itself the perforated tendon of the second phalanx of the second toe, in the sides of which it is inserted. The third portion of this muscle ends in a somewhat smaller tendon than the preceding. The fourth and most posterior portion soon becomes a distinct muscle; its fleshy fibres cease on the inner side, one-fourth down the leg, but on the outside they are continued three-fourths down the leg: its tendon passes through the gastrocnemial pulley behind the ankle-joint, and divides to form a sheath for the first *perforatus* of the fourth toe; it is then joined by a tendon passing through a pulley across the external malleolus, and finally becomes the perforated tendon of the first metacarpal bone of the middle or third toe.

Pectineus (Rectus anticus femoris of Meckel).—This is a long, thin, narrow strip of muscle arising from the spine of the pubis, anterior to the acetabulum, and passing straight down the inner side of the thigh; it degenerates into a small round tendon near the knee, which tendon traverses a pulley, formed by an oblique perforation in the strong rotular tendon of the extensors of the leg, and thus passing across the knee-joint to the outer side of the leg, finally expands, and is lost in the *flexor perforatus digitorum* last described. It is this muscle which causes the toes to be bent when the knee is bent.

Peroneus longus.—*Origin:* tendinous from the head of the tibia, and by carneous fibres from the upper half of the anterior margin of the tibia; these fibres pass obliquely to a marginal tendon, which becomes stronger and of a rounded form where it leaves the muscle. The tendon gives off a broad, thin, aponeurotic sheath to be inserted into the capsule of the tarsal joint; it is then continued through a synovial pulley on the side of the outer malleolus, and is finally inserted or continued into the perforated tendon of the middle toe.

Tibialis anticus.—This muscle is overlapped and concealed by the peroneus; it arises partly in common with that muscle, and partly by separate short tendinous threads from the outer part of the head of the tibia; it gradually becomes narrower, and finally tendinous two-thirds of the way down the leg; its strong tendon glides through the oblique pulley in front of the distal end of the tibia, expands as it passes over the ankle-joint, and is inserted into the anterior part of the proximal end of the tarso-metatarsal bone, sending off a small tendinous slip to the aponeurosis covering the extensor tendons of the toes, and a strong tendon which joins the fibular side of the following muscle.

Extensor longus digitorum.—This lies between the *tibialis anticus* and the front and outer facet of the tibia, from which it derives an extensive origin; its tendon commences half-way down the leg, runs along the anterior part of the bone, first under the broad ligamentous band representing the anterior part of the annular ligament, then through a ligamentous pulley, and inclines to the inner or tibial side of the anterior surface of the metatarsal bone, where it expands and divides into three tendons. Of these the innermost is given off first, and subdivides into two tendons, one of which goes to be inserted into the base of the last phalanx of the second toe; the other portion is principally inserted into the middle toe, but also sends off a small tendon to the inner side of the proximal phalanx of the second toe. The second tendon is inserted by distinct portions into the second, third and last phalanges of the middle toe. The third tendon supplies the outer toe.

Extensor brevis digitorum.—A small extensor muscle arises from the insertion of the *tibialis anticus*, and sends its tendon to the outer side of that of the great *extensor digitorum*.

Extensor pollicis brevis.—An extensor of the small innermost toe arises from the upper and inner side of the tarso-metatarsal bone.

Flexor perforans digitorum.—This strong penniform muscle arises fleshy from nearly the whole of the outer surface of the fibula, also

from the posterior part of the tibia and the interosseous space; the tendon of the biceps perforates its upper part in passing to its insertion. It ends in a strong flat tendon at the lower third of the leg, which tendon runs through a particular sheath at the back part of the tarsal pulley, becomes thickened and expanded as it advances forwards beneath the tarsus, receives a strong accessorial tendon from the muscle which bends the innermost toe, and finally divides into three strong perforating tendons, which bend the last joints of the three long toes.

In the outer, or fourth toe, both the *perforans* and *perforatus* tendons are confined by a double annular ligament; the exterior one being continued from the adjoining toe, the inner and stronger one from the sides of the proximal phalanx of the outer toe.

The second and third toes have two perforated tendons; one inserted into the sides of first, and the other into sides of second phalanx.

Mr. Gould then proceeded to characterize a new species of *Perameles* from Port Essington, and a new species of *Dasyurus* from the same locality.

PERAMELES MACROURA. *Per. corpore suprâ nigro et flavescenti-albo penicillato, infrâ sordide albo; pilis rigidis obsito; caudâ pilis parvulis parcè tectâ, longitudine dimidio corporis æquante; suprâ nigra, infrâ fuscescenti-alba; auribus mediocribus.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	16	3
———— caudæ	7	3
———— ab apice rostri ad basin auris	3	4
———— tarsi digitorumque	3	1
———— auris	1	2

Hab. Port Essington.

The *P. macroura* greatly resembles the *P. nasuta*, having the same elongated form of head, character of fur and colouring, but is distinguishable by its longer tail.

DASYURUS HALLUCATUS. *Das. suprâ flavescenti-fuscus, nigro-penicillatus, maculis albis ornatus; corpore infrâ albo; caudâ im-maculatâ ad apicem nigra.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin ...	11	0
———— caudæ	9	0
———— ab apice rostri ad basin auris	2	6
———— tarsi digitorumque	1	1½
———— auris	1	0

Hab. Port Essington.

This species most nearly resembles the *Dasyurus Geoffroii*, but is of a smaller size, and has the thumb of the hind-foot more developed.

Accompanying the specimen from which the above description is taken was another individual, which differs only in having the ground-colour of the body nearly black; hence it would appear that the present species is subject to the same kind of variation in its

colouring as the *Dasyurus Maugei*, the black variety of which has received the name *viverrinus*.

The following "Monograph of *Crassatella*, a genus of Acephalous Mollusks (Family *Maत्रacea*)," by Mr. Lovell Reeve, was next read.

The genus *Crassatella* was instituted by Lamarck for the purpose of associating certain bivalve mollusks that had been hitherto distributed amongst the *Maत्रæ* and the *Veneres*. Their shells exhibit an interesting peculiarity of character, differing from the former in being thick and solid, and for the most part covered with a strong brown epidermis; and from the latter in the position of the ligament. The genus, however, as introduced by Lamarck, was yet imperfect; it included five species that could not easily be distinguished from his *Amphidesmata*, and was therefore susceptible of farther division. With the view of uniting the intermediate species of these genera, a new genus was proposed by Deshayes, under the title of *Mesodesma*, and I have found great convenience in adopting it in my 'Systematic Conchology.' Thus out of eleven species described by Lamarck as *Crassatellæ*, six only can be allowed to remain. Since his time, however, several new and important species have been discovered; two have been described by Sowerby in the 'Proceedings' of this Society, one by the same author in his 'Appendix to the Tankerville Catalogue,' and I have now the pleasure of exhibiting *ten* more, which I believe to be entirely new to science.

To make this a complete monograph, I mention all the species, distinguishing the new ones by the addition of the specific characters.

1. *CRASSATELLA CASTANEA*. *Crass. testâ ovato-trigona, gibbosa, umbonibus planè erosis, epidermide castanea, quasi politâ nitente, indutâ; intus subfusca; latere antico rotundato; postico angulifero, abrupto.* Reeve, Conch. Icon.* *Crassatella*, pl. 1. f. 3.

Long. $3\frac{1}{2}$; alt. 3 poll. Mus. Stainforth, Saul, Walton.

Hab. ad oras Novæ Hollandiæ.

The *Crassatella castanea* is the largest and perhaps the best defined species of the genus; its shell is covered with a shining horny epidermis, and both valves are singularly eroded at the umbones. I know of three specimens of this fine shell, and each of them fully exhibit this last-mentioned peculiarity.

2. *CRASSATELLA KINGICOLA*. Lamarck, Anim. sans vert., vol. v. p. 481; Reeve, Conch. Icon. *Crassatella*, pl. 1. f. 5.

Hab. ad oras Novæ Hollandiæ. Mus. Stainforth.

A specimen of this species, in the possession of the Rev. Mr. Stainforth, is the only one that I have seen.

3. *CRASSATELLA DECIPIENS*. *Crass. testâ ovata, subgibbâ, epidermide fusca indutâ, vividè radiatâ, radiis ab umbonibus ad margines*

* Having made accurate drawings of the *Crassatellæ*, with a view to publication at some future period, I venture to refer to a pictorial and descriptive repertory of species now in course of preparation, to be entitled "CONCHOLOGIA ICONICA."

sæpè extensis; latere antico subangulato, striis brevibus ornato; postico subquadrato, parùm productiore. Reeve, Conch. Icon. Crassatella, pl. 1. f. 4.

Long. $2\frac{1}{2}$; alt. $2\frac{1}{8}$ poll.

Hab. ad oras Novæ Hollandiæ.

Crassatella Kingicola, Nobis (falsò), Conch. Syst., vol. i. pl. 44. f. 3.

This species, which has lately arrived from New Holland in great abundance, has been received by most collectors as the *Crassatella Kingicola* of Lamarck; I moreover regret that it has been erroneously figured under that title in my 'Conchologia Systematica.' This error was kindly pointed out to me by Mr. Sowerby, and I am now satisfied that the shell of Lamarck's *Crassatella Kingicola*, which is accurately figured in the 'Genera of Recent and Fossil Shells,' is one of extreme rarity. Mr. Cuming possesses a gibbous variety of the *C. decipiens*, but it is not sufficiently distinct to demand especial notice. Mr. Owen is we believe engaged upon the anatomy of this species.

4. CRASSATELLA PULCHRA: *Crass. testâ ovato-trigona, depressâ, obsolete radiatâ, epidermide crassâ, fibrosâ, molliusculâ, indutâ; transversim sulcatâ, sulcis profundis, regularibus; latere antico rotundato; postico subangulato.* Reeve, Conch. Icon. Crassatella, pl. 3. f. 16.

Long. $2\frac{7}{8}$; alt. 2 poll. Mus. Cuming, Stainforth.

Hab. ad oras Novæ Hollandiæ.

De Blainville appears to have figured this shell in his 'Manuel de Malacologie' as the *Crassatella sulcata* of Lamarck; but it is of a totally different form, nor does it agree with the *Macra sulcata* of Bruguière, to which he refers in the 'Encyclopédie Méthodique'; I therefore now propose to distinguish it by the above new title. The shell of the *Crassatella sulcata* approaches rather in form to that of the *Crassatella rostrata*, the anterior side of which is specially characterized as being *productiore*; the grooves too in that species run irregularly across the valves, and are not parallel with the lines that mark the increase of growth. The shell of the *Crassatella pulchra*, on the contrary, is of a plain triangular form; the posterior side is but slightly produced, the grooves are very deep, and they run parallel with the lines of growth.

5. CRASSATELLA LAPIDEA. *Crass. testâ ovato-orbiculatâ, epidermide fibrosâ indutâ, umbonibus parvis, striatis; intus subfusca; latere antico rotundato, abrupto, striis nonnullis brevibus ornato; postico subangulato.* Reeve, Conch. Icon. Crassatella, pl. 2. f. 7.

Long. $1\frac{3}{4}$; alt. $1\frac{1}{4}$ poll. Mus. Cuming.

Hab. ad insulam Negros, Philippinarum.

Mr. Cuming met with one true pair only and a few odd valves of this species at the Island of Negros in coarse sand in seven fathoms water. The shell somewhat resembles that of the *Crassatella donacina*, but may however be readily distinguished.

6. CRASSATELLA DONACINA. Lamarck, Anim. sans vert., vol. v. p. 481. Reeve, Conch. Icon. Crassatella, pl. 3. f. 19.

This shell, figured in Delessert's 'Recueil de Coquilles,' pl. 4. f. 1, *a, b*, is extremely rare. The only specimens I have seen are in the collections of Miss Saul and the Rev. Mr. Stainforth.

7. *CRASSATELLA UNDULATA*. Sowerby, Proc. Zool. Soc., 1832, p. 56; Reeve, Conch. Icon. Crassatella, pl. 1. f. 2. *a.* and *b.*

8. *CRASSATELLA ANTILLARUM*. *Crass. testâ trigono-ovatâ, vix gibbosâ, crassâ, epidermide fibrosâ indutâ; intus brunneâ, propè ad marginem albicante; umbonibus subdepressis, leviter undulatis; latere antico rotundato, postico subangulato.* Reeve, Conch. Icon. Crassatella, pl. 2. f. 8.

Long. $3\frac{1}{8}$; alt. $2\frac{1}{4}$ poll. Mus. Cuming.

Hab. ad insulam Margaritta, Antillarum.

Mr. Cuming informs me that this beautiful species was dredged up in the pearl-fisheries at the island of Margaritta in the West Indies. It is erroneously figured in Delessert's 'Recueil de Coquilles' as the *Crassatella rostrata* of Lamarck. The rich chocolate colour of the interior of this shell is very remarkable, approaching somewhat in that respect to that of the preceding species.

9. *CRASSATELLA JUBAR*. *Crass. testâ subovatâ, valdè inæquilatèrâ, gibbosâ, extus vividè radiatâ, radiis ferruginosis, ab umbonibus, jubarum similitudine, divergentibus; ad utrumque latus irregulariter multistriatâ; epidermide fuscâ, subquassâ, sparsim indutâ; intus albâ, ad extremitatem posticam brunneâ; umbonibus plicatis, compressis; latere antico inclinato, rotundato, postico arcuato, elongato, acuminato.* Reeve, Conch. Icon. Crassatella, pl. 2. f. 11.

Long. $2\frac{1}{8}$; alt. $1\frac{3}{8}$ poll. Mus. Cuming.

Hab. Ad oras occidentales Novæ Hollandiæ.

A single specimen of this fine shell was procured by Mr. Cuming in Hamburgh; it had been received from that prolific portion of the globe above noted, and has made a valuable addition to the genus. It has the general form of the *C. gibbosa*; the sides are profusely striated, and the entire surface is richly illumined with brownish rays, diverging like solar beams from the umbones to the margin.

10. *CRASSATELLA SULCATA*. Lamarck, Anim. sans vert., vol. v. p. 481; Reeve, Conch. Icon. Crassatella, pl. 2. f. 6. *a.* and *b.*

Hab. ad oras Novæ Hollandiæ.

This is another very rare species; I know of two or three odd valves, but only one true pair, which is in Mr. Cuming's collection.

11. *CRASSATELLA ROSTRATA*. Lamarck, Anim. sans vert., vol. v. p. 481; Reeve, Conch. Icon. Crassatella, pl. 2. f. 10.

Hab. ad insulam Ceylon.

The figures which have been just published by M. Chenu in Delessert's 'Recueil de Coquilles' as the *Crassatella rostrata* of Lamarck, are certainly not that species, nor do they at all correspond with his description of it, particularly in that part which says *intus margine crenulato*; I have moreover every reason to believe that they are drawn from specimens of the new species from the island of Marga-

ritta, which we have called *Crassatella Antillarum*. The *Crassatella rostrata* is a well-known species from Ceylon, and the only large one of the genus that is distinctly crenulated at the margin.

12. *CRASSATELLA GIBBOSA*. Sowerby, Proc. Zool. Soc., 1832, p. 56; Reeve, Conch. Syst., pl. 44. fig. 2; and Conch. Icon. Crassatella, pl. 1. f. 1. *a.* and *b.*

13. *CRASSATELLA CORBULOIDES*. *Crass. testâ suborbiculatâ, valdè gibbosâ, umbones versùs profundè sulcatâ, epidermide fuscâ indutâ; latere antico rotundato, postico producto, subitò rostrato.*

Reeve, Conch. Icon. Crassatella, pl. 2. f. 9.

Long. $1\frac{3}{4}$; alt. 1 poll. Mus. Stainforth.

Hab. —?

The title of *corbuloides* is selected for this new and very characteristic species, on account of its short gibbous form; the anterior side is suddenly beaked, like some of the *Corbulæ*, and cannot well be confounded with the *Crassatella gibbosa*, to which it is nearly allied.

14. *CRASSATELLA RADIATA*. Sowerby, App. Tank. Cat.; Reeve, Conch. Syst., pl. 44. fig. 1; and Conch. Icon. Crassatella, pl. 3. f. 12.

Hab. ad insulam Singapore.

This species, originally described by Sowerby from a specimen belonging to the late Earl of Tankerville, was found by Mr. Cuming at the island of Singapore, in coarse sand at seven fathoms' water.

15. *CRASSATELLA SUBRADIATA*. Lamarck, Anim. sans vert., vol. v. p. 482; Reeve, Conch. Icon. Crassatella, pl. 3. f. 15. *a.* and *b.*

I have little doubt but that the shell now before me, from the collection of the Rev. Mr. Stainforth, is the *Crassatella subradiata* of Lamarck. Unfortunately there does not exist any drawing of it, nor does it appear in Delessert's 'Recueil de Coquilles,' in which M. Chenu professes to illustrate all the species described by Lamarck that have not yet been figured.

16. *CRASSATELLA CONTRARIA*. Lamarck, Anim. sans vert., vol. v. p. 481; Reeve, Conch. Icon. Crassatella, pl. 3. f. 18. Mus. Stainforth, Saul.

Venus contraria, Gmelin.

Venus divaricata, Chemnitz.

Crassatella divaricata, D'Orbigny.

Hab. ad insulam Lancerotte, Canariarum.

I have only seen three specimens of this very interesting shell. The above locality is quoted from D'Orbigny's 'Mollusques des Isles Canaries;' it is the only species of *Crassatella* he found in that district.

17. *CRASSATELLA ZICZAC*. *Crass. testâ subtrigonâ, depressâ, luteolâ, epidermide tenui indutâ; radiis binis interruptis ab umbonibus ad margines divergentibus, lineis roseis, flexuosis, ubique pictâ; intùs subrosaced; latere antico breviculo, rotundato; postico subangulato; lunulâ utrinque radiis roseis vividè virgatâ.* Reeve, Conch. Icon. Crassatella, pl. 3. f. 13.

Long. $1\frac{1}{8}$; alt. 1 poll. Mus. Cuming.

Hab. ad insulam Corrigidor, Philippinarum.

This species was found by Mr. Cuming at the island of Corrigidor, in coarse sand at six fathoms water; he possesses it in several stages of growth, all of which are covered with fine rose-coloured zigzag lines.

18. *CRASSATELLA TRIQUETRA*. *Crass. testá trigoná, solidá, rosaced, epidermide tenui indutá, transversim striatá; maculis roseis irregularibus vivide pictá; intùs rosaced, versùs marginem albicante; margine tenuiter crenulato; lateribus subrectis, vix rotundatis; lunulá utrinque magná, radiis roseis vivide virgatá.* Reeve, Conch. Icon. Crassatella, pl. 3. f. 14.

Long. $\frac{7}{8}$; alt. $\frac{6}{8}$ poll. Mus. Stainforth, Cuming, &c.

Hab. —?

I am unfortunately ignorant of the locality of this pretty little species; it is of a warm rose-colour, radiately spotted with deep pink, and is of a solid triangular form.

19. *CRASSATELLA ORNATA*. *Crass. testá trigoná, subdepressá, pallidá, lineis spadiceis brevibus, longitudinalibus, variè pictá, transversim striatá; intùs albdque brunneá, margine tenuiter crenulato, latere antico rotundato, postico flexuoso, angulato.* Reeve, Conch. Icon. Crassatella, pl. 3. f. 17.

Mesodesma ornata? Gray.

Long. $1\frac{1}{8}$; alt. $\frac{7}{8}$ poll. Mus. Stainforth.

Hab. —?

A specimen of this shell, in the collection of Miss Saul, is the only one we have seen at present. The above title has been decided upon because there is an inaccurate figure of it in Griffith's 'Cuvier's Animal Kingdom' with the name of *Mesodesma ornata*; it is not accompanied with any description, but we believe it to be intended for this shell.

March 8, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

Various species of Reptiles, and some Fishes collected in the Niger Expedition, by Dr. Stanger, and presented by that gentleman to the Society, were exhibited.

Mr. Waterhouse called the attention of the Members to two new species of Marsupial animals from South Australia, and forming part of a collection presented to the Society by J. B. Harvey, Esq.; one belonging to the genus *Phascogale*; and the other, of which only an imperfect skin had been procured, Mr. Waterhouse observed, was evidently a new species of *Perameles*, nearly allied to the *P. Lagotis* of Mr. Reid, but differed from that animal in having much smaller ears, a less hairy tail, and in being of a brown colour above, pencilled with white. The fur is dense and very soft; on the upper part of the body it is of a slate-grey colour next the skin; each hair of the ordinary fur is brownish white towards the apex, and shaded into deep brown at the point. The longer and less soft hairs are very broadly annulated with white near the point, and black at the the point. The fur on the under parts of the body is white—rather impure; and next the skin it is tinted with palish grey. On the side of the body and head a yellowish hue is observable. The ears are of moderate size, rather broad, and well clothed with hairs; on the inner side these are of a dirty white colour, slightly tinted with yellowish, and so are those on the outer side, excepting towards the margin, where they are of a brownish black hue. The tail is imperfect; it must have been, however, longer than in any known *Perameles* (excepting the *P. Lagotis*), the part attached to the skin measuring eight and a half inches. It is well clothed with hairs, which completely hide the skin, though they are rather short: on the upper part they are of a rich brown colour, excepting towards the apex, where they are longer and entirely white; on the under side they are dirty white. The feet are unfortunately wanting. The length of the head and body is about sixteen inches, and the ear measures about one inch in length.

Mr. Waterhouse gave to this animal the name of its discoverer, a Corresponding Member of the Society, and one to whom the Society is indebted for very many valuable collections. Its principal characters may be thus expressed:—

PERAMELES HARVEYI. *Per. pilis mollibus; corpore suprà fusco alboque irrorato, infrà albo; caudâ longâ, suprâ fuscâ, infrâ et ad apicem sordidè albâ.*

Hab. Port Adelaide.

Nos. CX. CXI. & CXII.—PROCEEDINGS OF THE ZOOL. SOC.

The *Phascogale* presents the following characters:—

PHASCOGALE ALBIPES. *Phasc. pilis brevibus et permollibus; corpore suprà nigro et flavescenti-irrorato, infrà albo; pedibus albis; caudâ longâ suprâ fuscescente, infrâ fusco-albâ.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	3	9
————— ad basin auris	0	10 $\frac{1}{2}$
————— <i>auris</i>	0	7
————— <i>caudæ</i>	3	2
————— <i>tarsi digitorumque</i>	0	8 $\frac{1}{4}$

Hab. Port Adelaide.

The fur in this little animal is shorter than in other species of *Phascogale* hitherto described, and extremely soft; it is of a deep slate-grey colour next the skin, but externally, on the upper parts of the body, the colour is brownish, a tint produced by the admixture of black and yellow, the hairs being annulated with the latter colour near the point, and black at the point. The under parts of the body are greyish white, each hair being deep grey and tipped with white. The feet are white. The tail is furnished throughout with very minute hairs. It approaches most nearly to the *P. murina*, but differs in being rather larger, in general colouring, and especially in having the tail of a dark colour, and not white, as in that species.

March 22, 1842.

William Horton Lloyd, Esq., in the Chair.

A letter from the Society's Corresponding Member, E. L. Moore, Esq., dated Newfoundland, February 7, 1842, was read, and a young Harp Seal (*Phoca Grænlandica*, Müller) presented by that gentleman was exhibited.

The following paper, by Mr. Lovell Reeve, entitled "Descriptions of new species of Shells, principally from the collection of Hugh Cuming, Esq.," was then read.

Genus BULIMUS.

BULIMUS SMARAGDINUS. *Bul. testâ oblongo-ovatâ, nitidâ, viridi, apicem versus subpurpureâ; fasciâ albidâ per anfractuum suturas decurrente; aperturâ rotundato-ovali, peristomate albo, reflexo.*

Reeve, Conch. Syst., vol. ii. pl. 173. fig. 6.

Hab. ad insulam Mindanao, Philippinarum.

Long. $2\frac{3}{8}$; lat. $1\frac{3}{8}$ poll.

The whorls of this shell exhibit a pleasing gradation of colour; commencing at the apex in deep purple, it passes through pale yellow to a bright sea-green.

Genus HELIX.

HELIX VALTONI. *Hel. testâ ovatâ, depressâ, anfractibus ventricosiusculis, ultimo supernè productione; rubido-fusca, radiis longitudinalibus obsolete pictâ; epidermide tenui, peculiariter maculosa, indutâ; aperturâ subquadrato-ovali, marginibus nigerrimis, disjunctis; labro acutissimè reflexo.* Reeve, Conch. Syst., vol. ii. pl. 166. fig. 23.

Hab. ad insulam Ceylon.

Long. $2\frac{1}{4}$; lat. $1\frac{5}{8}$ poll.

I name this remarkable shell in honour of my friend William Walton, Esq., a zealous and assiduous collector; it is of a dark ruddy brown colour, and has a very black polished lip; it is, however, especially characterized by its curiously speckled epidermis.

Genus SIPHONARIA.

SIPHONARIA CHARACTERISTICA. *Siph. testâ orbiculari, conica, extus longitudinaliter costatâ, costis irregularibus, interstitiis nigricantibus, apicem versus valde decorticatis; intus nigerrimo-fusca, impressione musculari scabra, profundè notatâ; impressione siphonali characteristicè imbutâ.* Reeve, Conch. Syst., vol. ii. pl. 138. fig. 3.

Hab. In sinu Panamensi.

Long. $2\frac{1}{4}$; lat. $1\frac{7}{8}$; alt. $1\frac{1}{4}$ poll.

This shell approaches very closely to the *Siphonaria gigas* of Sowerby; we venture, however, after a close comparison between specimens of each in different stages of growth, to pronounce it a distinct species. It is of a more irregular form, and the separate impressions of the muscle and the siphon are remarkably distinct.

GENUS PARMOPHORUS.

PARMOPHORUS CORRUGATUS. *Parm. testâ elongato-quadratâ, tenui, depressâ, extûs leviter corrugatâ; vertice obtuso, propè ad partem posticam inclinato.* Reeve, Conch. Syst., vol. ii. pl. 139. fig. 1.

Hab. ad insulam Madagascar.

Long. $1\frac{1}{2}$; lat. $\frac{3}{4}$ poll.

Principally distinguished by the position of the vertex, which is more posterior than in any other species; the wrinkled sculpturing upon the outer surface is also a well-defined peculiarity.

PARMOPHORUS INTERMEDIUS. *Parm. testâ ovatâ, elevatiusculâ, anticè attenuatâ; extûs radiis asperrimis, quasi serratis, ornatâ; vertice prominulo, incurvo; margine crenulato.* Reeve, Conch. Syst., vol. ii. pl. 139. fig. 5 and 6.

Hab. ad insulam Bohol, Philippinarum.

Long. $\frac{3}{4}$; lat. $\frac{3}{8}$ poll.

This beautiful little shell, which may be considered as intermediate in its generic characters between the *Parmophori* and the *Emarginulæ*, is most elegantly radiated on the outer surface, and the only species of this genus at present known that is serrated at the margin.

GENUS EMARGINULA.

EMARGINULA CONOIDEA. *Emarg. testâ conoideâ, albicante, extûs striis numerosis creberrimè radiatâ; vertice centrali, acuto; margine valdè crenato, sinu marginali profunde inciso.* Reeve, Conch. Syst., vol. ii. pl. 140. fig. 7.

Hab. —?

Long. $\frac{7}{8}$; lat. $\frac{5}{8}$; alt. $\frac{1}{2}$ poll.

A very characteristic shell, in the collection of William Walton, Esq.

GENUS CALYPTRÆA.

CALYPTRÆA CINEREA. *Cal. testâ suborbiculari, extûs a vertice radiatâ, radiis spinis parvis numerosis irregulariter ornatâ; intûs cinereo nitente, cyatho magno, albo, subpellucido, lateraliter flexuoso.* Reeve, Conch. Syst., vol. ii. pl. 144. fig. 4.

Hab. Cape Horn.

Diam. $1\frac{3}{4}$; alt. 1 poll.

An immense number of these shells, just brought to England, were found attached to a single log of wood floating off Cape Horn. The interior is lined with a very dark, ashy, highly polished enamel, but the cup is of a pure transparent white, offering a remarkably rich contrast of colour. The exterior of the shell is irregularly covered with numerous small spines, becoming, as in most of the *Calyptrææ*, obsolete with age.

April 12, 1842.

The Meeting was adjourned to April 26th.

April 26, 1842.

William Horton Lloyd, Esq., in the Chair.

The following "Description of a new Dorsibranchiate Gasteropod, discovered at Madeira," by the Rev. R. T. Lowe, was read.

Class MOLLUSCA.

Ord. GASTEROPODA.

Fam. NUDIBRANCHIÆ (*Les Tritoniens*, Lam.).

Gen. PEPLIDIA.

Char. Gen.—*Corpus* limaciforme, repens, oblongum; posticè compresso-triquetrum, dorso abruptè (ut in *Scyllæd*) cristatum s. alato-carinatum; apice attenuato, acuto. *Caput* anticè (ut in *Thethye*, L.) veliferum; velo semicirculari, margine fimbriato-lacero, ciliolato: ore inter labia buccalia subtus, simplici. *Tentacula* (ut in *Doride*) duo. *Orificium* generationis ad colli dextrum. *Branchiæ* diplomorphæ: s. in medio dorsi (ut in *Doride*) circa anum stellatim ramosæ, arbusculiformes, ramis pectinato-ciliatis; et per latera utrinque (ut in *Tritonia Thethyeve*) longitudinaliter biseriatæ, conico-papilliformes; papillis apice subdivisis, ciliatis.

Obs. *Corpus* totum glabrum, læve, subpellucidum. *Oculi* nulli.

Spec. Peplidia Maderæ, nob.

Hab. in mari Maderensi-atlantico, inter rupes littorales in aquis æstu relictis; rariss.

A single example of this beautiful and extremely interesting mollusk was discovered on the 24th of April, 1841, by Dr. Lister, in a pool left by the tide amongst a reef of rocks called the Gorgulho, situate a little to the west of Funchal. It presents a combination of generic characters, by which, if it approximates in each apart by turns to *Doris*, *Thethys*, *Tritonia*, and *Scyllæa*, it differs notably from all. The large dorsal star-like tuft of branchiæ, and the tentacles, resemble those of *Doris*; but it differs totally in other characters: the veil before the head, though smaller and differently fringed, together with the rows of branchiferous papillæ down the back or sides, bringing it somewhat nearer *Thethys*, from which it is essentially distinguished, as it is also from *Tritonia* and *Scyllæa*, by its Doridian

character of the ano-dorsal five-branched rose or star of branchiæ. And if agreeing with the last of these two genera in the carinate or crested tail, it is at once distinguished by the presence of the frontal veil.

The whole upper surface of the animal, which is from one inch and a half to two inches and a half long, about one-third of an inch broad and half an inch high, is of a pale dull red, mottled or freckled with brighter orange-red and yellow, and thickly speckled all over with dark chestnut-brown spots and dots, which are larger and sub-confluent in two sublateral darker lines or rows, meeting behind the branchial star upon the back, and smaller on the sides and veil. The tentacles above, and the foot alone beneath are immaculate, the latter being pale pellucid flesh-colour, with the extreme edges yellow.

The edges of the veil, and the tips of the dorsal or sublateral branchiferous papillæ are fimbriato-ciliate. Of the latter, there are two rows on each side: the lower consisting each of six small and inconspicuous or obsolete papillæ; the upper, each of three much larger and more elongate or subcylindric bodies, placed at equal distances from one another, two in advance, and the third a little behind the ano-dorsal rose. The head or apex of each of this third or last pair forks into two parts, one of which is subdivided or ciliferous, like the other pairs; the other branch of the fork is simple and clavate, ending abruptly in a dark red sort of knob or button. The orifice of generation is on the right side of the neck, beneath the first of the upper row of branchiferous papillæ. During the animal's life it appeared simple, but on contraction after death it was found to be composed of two apertures close together; the male organ being exerted from the anterior.

The ano-dorsal branchial tuft or star is very large, and placed at the top of a strong hump or protuberance; the vent being in its centre, as in *Doris*. It appears, in general, equally five-rayed; but assumes occasionally, as it also does sometimes in *Doris*, the appearance of being composed of two bifurcated lateral, and a simple anterior branch or ray. Its divisions are regularly and beautifully pectinate. The caudal fin-like crest begins a little behind it; and its edge is crisped or irregularly notched and plicate, and even obsoletely ciliate here and there, or fimbriate. In swimming, this crest is stiffly expanded into a broad fin, ending abruptly behind, as in Cuvier's fig. 4. of *Scyllæa pelagica* (Mém. des Moll.), but with the edge even or entire.

In a glass of sea-water, in which this animal lived more than six weeks, it had the usual habits of a *Doris*, but these with more activity: swimming about violently when disturbed or when provided with a fresh supply of water, in which operation the hind part of the body, with the crested fin-like tail, is lashed from side to side with a strong and regular sculling motion; the fore-part, with the head or veil expanded also to its full dimensions, being at the same time beat with equal force and regularity in a contrary direction, or obliquely upwards and downwards, stroke for stroke; these parts (the veil and crest) performing thus alike the office of true fins. At night, espe-

cially when thus in motion, it appeared most brilliantly phosphorescent; the light flashing progressively but very rapidly along the body, especially from all the branchial tufts and the edges of the veil and crest. At other times it remained quiescently adhering to the sides of the glass, or moving slowly up and down as if in search of food; seeming to use the veil as a feeler, but with the tentacles reflexed. Sometimes it crawled in the usual inverted posture along the surface of the water. It is by no means a shy or timid animal.

After five or six days, it deposited in the night-time a pale orange-coloured long and narrow riband of eggs, resembling a tape-worm, and loosely coiled up spirally on the side of the glass, to which it was partially attached by one edge. This egg-band was about three inches and a half long and two lines broad, narrowing a little towards one end. On two subsequent occasions, at intervals of ten days or a fortnight, it again deposited two similar but smaller bands; after which, though apparently remaining in full vigour, it retained not more than two-thirds of its former bulk.

Its mode of swimming perfectly resembles that of the larva of the gnat so common in our English cisterns of rain-water.

The next paper read was from W. J. Broderip, Esq. In this paper the author proceeds with his descriptions of Shells brought to this country by H. Cuming, Esq.

In the second volume of the 'Zoological Journal' will be found my notice of the *Voluta aulica* of Solander, a shell which formed one of the principal ornaments of the Portland Museum, of that of M. de Calonne (in the catalogues of which it is noted as unique), of the Tankerville collection (in the catalogue of which Mr. Sowerby speaks of it as "an extremely scarce and fine shell; the only specimen we have seen"), and of my own cabinet, which is now in the British Museum.

Mr. Cuming has laid before me some Volutes which he brought from the Philippine Islands, and which, after a careful examination, I think must be referred to this scarce species. Not one of them, however, is identical with the variety in the British Museum (var. *a.*); which is still, as far as I know, unique.

Voluta aulica.

Var. *a.* Without nodules or bands, spotted with large red flakes: Mus. Brit. Figured in the Tankerville catalogue (G. B. Sowerby).

Var. *b.* Flesh-colour, subnodulous, girt with two broad rich red bands mottled with white; spire mottled with red and white, apex coral-red. Length nearly 4 inches, breadth $1\frac{6}{8}$.

Var. *c.* Flesh-colour, nodulous, lineated longitudinally with close-set, red, somewhat undulated lines, mottled here and there with white, girt by two interrupted rich red bands; spire mottled with red and white, apex coral-red. Length $4\frac{1}{2}$, breadth $2\frac{1}{8}$ inches.

Var. *d.* Nodulous, whitish, lineated with very close-set, delicate, pale yellowish undulated lines; body whorl girt with two broad yellowish red bands mottled finely with the ground-colour. The upper

band is bordered above with a row of rich dark brown spots approaching closely to black, each spot being placed upon a nodule: the lower edge of this band is serrated as it were, and each of the teeth is marked with a spot immediately under the upper spots, but more dashed and somewhat less intense. The upper edge of the lower band is marked in a similar manner, but the spots are less defined. Above the shoulder of the body whorl is a band of similar colour, with its lower edge dashed with markings of the same colour as those which ornament the other bands, and at similar intervals. Two similarly coloured spots appear below the third and fourth nodule of the spire just above the suture of the body whorl, which suture almost hides one below the second of those nodules, counting from the edge of the lip. Upper part of the spiral whorls coloured after the same pattern, and brought out by the pale ground-colour of the lower part. Apex yellowish red. Length $3\frac{1}{2}$ inches, breadth $1\frac{1}{2}$.

This description will convey a very faint notion of one of the most beautiful shells I ever saw.

Var. *e*. Sharply nodulous. Dull red, blotched with flesh-colour; a faint band, palest in the middle at intervals, girds the body whorl below the middle. The tips of the nodules are of the same colour as the blotches. Length $4\frac{1}{4}$ inches, breadth $2\frac{1}{8}$.

Var. *f*. Very sharply nodulous, the muricated nodules becoming high ridges extending almost half-way down the body whorl. Dull coral-red, with here and there a dash of whitish between the nodules. A very faint band may be traced below the middle of the body whorl, and on its darker upper and lower borders a few white spots appear at intervals as they approach the lip. Length $4\frac{2}{8}$ ths, breadth $2\frac{1}{8}$ th inches.

Var. *g*. Bluntly but highly nodulous on the back, the nodules on the lower side rather sharper. Whitish, lineated longitudinally with close-set undulated livid lines blotched with clouds and dashes of livid red. A broad pale band girds the body whorl below the middle. Apex reddish white. Length $5\frac{1}{8}$; breadth 3 inches.

All these varieties, with the exception of var. *a*, are in the museum of Mr. Cuming.

CONUS VICTOR. *Con. testá subcylindraceo-conicá, flavá, maculis albis inspersá, fasciis 2 moniliformibus latis, nigro-brunneis vel brunneo-castaneis, latis concinnè ornatá; spiræ mediocris, pyramidalis, anfractibus excavatis longitudinaliter striatis, subcancellatis, apice subacuto.*

Long. $1\frac{2}{8}$; lat. $\frac{5}{8}$ poll.

Mus. Cuming, Harford.

Hab. ?

This brilliant Cone strikes the eye at once. The bright star-like spots with which the dark necklace-bands are interrupted and relieved, and the yellow ground-colour which takes the form of three alternating bands, render it attractive, and the more minutely it is examined the more it gains on the attention. The necklaces forming the moniliform bands, when looked at with a lens, present the

appearance of some of the flattened platted chains executed in gold and silver, and the shell altogether is a choice piece of workmanship.

The species to which *Conus Victor* bears most resemblance are *Coni nobilis* and *Ammiralis*; but it comes much nearer to the last in shape and general character, differing, however, from it in the deeper excavation and sculpture of the spire, to say nothing of the discrepancy in the arrangement of the colouring, which in the only two specimens that I have seen is identical. Of these, the richest in colour is in the fine collection of Mr. Cuming, and the younger, but very perfect specimen, in the choice cabinet of the Rev. A. Harford.

A paper by Mr. Lovell Reeve, entitled "Descriptions of four new species of *Achatina*, a genus of Pulmobranchiate mollusks of the family *Colimacea*," was then read.

ACHATINA LACTEA. *Ach. testâ oblongo-ovatâ, solidâ, intus extusque quasi fossili, lacteâ, epidermide levidensi sparsim indutâ; spirâ regulari, anfractibus longitudinaliter striatis, lineisque minutis circumdatis; aperturâ suboblongâ, labro solidiusculo.*

Reeve, Conch. Syst. vol. ii. pl. 177. fig. 6.

Long. $4\frac{1}{10}$; lat. $2\frac{1}{10}$ poll. Mus. Cuming, Stainforth.

Hab. Zanzibar.

This beautiful shell, which is in a perfectly live state, and covered with a slight scattered epidermis, is of a rich uniform cream-colour, without the least indication of any pattern; the whorls are very fully striated longitudinally, the striæ rather irregularly following the growth of the shell; and they are again characterized by having a number of fine lines running around the upper half of them in an opposite direction. The columella, the aperture, indeed the entire shell, both inside and out, is of rich cream-colour, and by this alone it cannot fail to be recognised.

ACHATINA TINCTA. *Ach. testâ oblongo-ovatâ, tenuiculâ, albicante, maculis grandibus longitudinalibus vividè tinctâ, epidermide flavidâ indutâ; spirâ parùm elatâ, apice obtuso, rosaceo; aperturâ oblongâ, albâ.*

Reeve, Conch. Syst. vol. ii. pl. 179. fig. 18.

Long. $3\frac{5}{10}$; lat. $1\frac{1}{2}$ poll. Mus. Cuming, Stainforth.

Hab. —? probably some part of Africa.

The *Achatina tinctoria* has a white shell covered with a yellowish epidermis, and it is singularly stained in a longitudinal direction with a deep morone colour. The stains take almost the form of bands in some places, but exhibit no degree of regularity.

ACHATINA KRANSII. *Ach. testâ ovatâ, vix ventricosâ, rufo-castaneâ, epidermide durâ, nitente, indutâ; anfractibus, ultimo excipiente, longitudinaliter strigatis, strigis albis, nunc rectis, nunc sinuosis, distantibus, de suturis, longitudine variabili, porrectis; spirâ breviusculâ, apice obtuso; aperturâ ovatâ, albâ.*

Reeve, Conch. Syst. vol. ii. pl. 179. fig. 19.

Long. $2\frac{3}{4}$; lat. $1\frac{1}{2}$ poll. Mus. Cuming.

Hab. Cape Natal, coast of Africa.

I have named this species, at the request of Mr. Cuming, in honour of Dr. Krans who presented it to him on his arrival from Cape Natal, where he had formed a very interesting collection of shells. It is of a dark chestnut colour, and the last and penultimate whorls are marked with small zigzag stripes running from the sutures about half-way down them; they are distant and somewhat irregular.

ACHATINA PICTA. *Ach. testá ovato-conicá, lævi, luteá, maculis, quasi fasciis, viridibus, conspersim ornatá; anfractibus planiusculis, suturis maculis castaneis, transversis, vividè pictis; spirá subelatá, apice minuto, rosaceo; aperturá orbiculari, flavidá.*

Reeve, Conch. Syst. vol. ii. pl. 178. fig. 10.

Long. $1\frac{1}{2}$; lat. $\frac{3}{4}$ poll. Mus. Stainforth.

Hab. ad insulam Cuba, Indiarum Occidentalium.

This elegantly painted shell is allied to the *Achatina fasciata* in form, though it is certainly of lighter texture. The ground-colour is a bright yellow; there are a few bright green bands crossing the whorls at intervals; and the sutures of the whorls are ornamented throughout with a banded row of stained chestnut-coloured spots, for the most part touching each other. I only know of one specimen, and it exhibits as distinct an assemblage of characters as can well be imagined.

May 10, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

Mr. Gould exhibited and pointed out the characters of two new species of Kangaroo. The first of these belongs to the section to which Mr. Gray gave the name *Petrogale*, as was described under the name

PETROGALE CONCINNA. *Pet. corpore suprâ rufescente fusco alboque irrorato, ad latera flavescente, subtus albo; caudâ dimidio apicali pilis longis vestitâ, his flavescenti-albis ad apicem nigris; pedibus pallidè fuscis, pilis sordidè albis crebrè interspersis; auribus mediocribus ad apicem paulo attenuatis.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin. . . .	14	0
— caudæ	8	0
— tarsi digitorumque	3	9
— auribus	1	4
— ab apice rostri ad basin auris	2	11

Hab. North-west coast of Australia.

This species of *Petrogale* is remarkable for its small size, the general pale colouring and the bright rusty tint of the upper parts of the body; these parts are freely pencilled with whitish and with brown; the sides of the neck and body are of a delicate yellowish hue, or might be described as very pale rust, and this is the prevailing hue of the head, which is nearly of a uniform tint; but is white, or nearly so, on the sides of the muzzle at the tip, and there is a trace of the usual white mark on the cheeks; above the eye is a spot of a pale rust-colour, and an indistinct brownish mark running towards the nostrils from the front of the eye; the ears are clothed within with white hair; externally they are of the same palish rusty yellowish hue as the upper surface of the head; the chin, throat and whole under parts are white, with a faint yellowish rusty tint; the outer side of the hinder legs is of a brighter tint than the sides of the body, but less red than the back; the feet are of a very pale brownish colour, freely pencilled with dirty white; a small space at the base of the tail is covered with fur of the same texture and colour as that of the body; beyond this the hairs of the tail are harsh, at first about half an inch or rather more in length, but becoming gradually longer towards the apex, where they are more than an inch long; these hairs are of a yellowish white colour, but the apical third of each hair is black. This species was brought to England by Lieut. Emery, of H.M.S. Beagle, and is now in the British Museum.

The second species belongs to the section or genus *Halmaturus*, and received from Mr. Gould the specific name *Binoë*, in honour of
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Benjamin Bynoe, Esq., to whom science is indebted for the discovery of many new and interesting objects in zoology. It is nearly allied to *Halm. agilis*, but in size is about equal to *Halm. Thetis*. The fur is harsh and adpressed, and for the most part of a very pale brownish yellow tint; the back, however, is freely pencilled with black, the longer hairs having the exposed portion of this colour; a slight brownish grey hue is observable next the skin in the hairs of the back, but they are nearly uniform throughout their length, if we except a small black point to the shorter hairs, and the exposed black portion of the longer hairs; the sides of the body and the limbs are of a paler hue, and are not pencilled with black; the abdomen may be described as of a dirty yellowish white colour; the tail is very nearly uniform in tint with the body, but a small portion at the apex is covered with brownish black hairs; the upper surface of the head is slightly tinted with brownish, and a mark of this colour runs from the eye to the tip of the snout on either side; adjoining this mark below is a pale mark; the ears have yellowish white hairs on the inner side, and rusty yellow hairs on the outer side; but along the anterior margin, and at the tip externally, the ears are black. The principal characters may be thus expressed:—

HALMATURUS BINOË. *Halm. corpore pallide fuscescenti-flavo, suprâ nigro penicillato, subtùs dilutiore; caudâ ad apicem fuscescenti-nigrâ; auribus externè ad apicem, margineque anticè, nigris.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin. . . .	21	0
————— ad basin auris	4	6
————— caudæ	20	0
————— tarsi digitorumque	7	9
————— auribus	2	3

Hab. Port Essington.

The following paper, by Mr. Lovell Reeve, entitled “Monograph of the genus *Tornatella*, a small group of Pectinibranchiate Mollusks of the family *Plicacea*, including descriptions of seven new species, from the collection of H. Cuming, Esq.,” was then read.

TORNATELLA, Lamarck.

Testa ovalis, cylindracea, plerumque transversim striata, rarò lævis-sima, spirâ brevi, apice acuto; aperturâ longitudinali, supernè angustatâ, infernè integrâ, rotundatâ; columellâ incrassatâ, valdè plicatâ; labro simplici, solido, acuto. Molluscum marinum, pectinibranchiatum, operculo corneo, minuto, instructum.

The very wide range of characters which were selected by Linnæus for the determination of genera induced many inaccuracies in his method of classification which might certainly have been avoided, if, instead of generalizing upon the external variations of the shell, he had pursued a more searching inquiry, like his contemporaries Adanson and Forskael, into the nature of its animal inhabitant. His genus *Voluta*, for example, founded upon the character of the

columella being obliquely plaited, included both phytophagous and zoophagous mollusks, animals both with and without proboscis, and respiratory siphon. The presence or absence of these organs, distinguishing the plant-eating from the flesh-eating mollusks, is however still indicated to a certain extent in the shell, by the basal formation of the aperture; and Bruguière, the conchologist of the 'Encyclopédie Méthodique,' appears to have sagaciously detected the difference between the shells of the true *Voluta* and those which were subsequently selected by Lamarck for the formation of this genus; the base of the aperture being sinuated or canaliculated in the one, and entire in the other. But the alteration proposed by Bruguière was little or no improvement upon the arrangement of Linnæus; for in removing the *Tornatellæ* to his genus *Bulimus*, they became associated with a miscellaneous assemblage of mollusks, differing most essentially both in their organization and habits. They were then distinguished by Lamarck by the above generic title; whilst De Blainville included them, together with some air-breathing mollusks, in a new genus under the name of *Pedipes*. The arrangement followed by the learned author of the 'Manuel de Malacologie' was thus scarcely better than that of his predecessor Bruguière; he, however, cautiously abandoned it, when the propriety of Lamarck's distribution of the *Tornatellæ* was subsequently confirmed by Gray in the discovery of their being operculated.

Of the following thirteen species referred to this genus, seven are entirely new; five were collected by H. Cuming, Esq. in the Philippine Islands, one by Dr. Rüppell on the shores of the Red Sea, and one by Dr. Siebald on the coast of Japan.

1. *TORNATELLA FLAMMEA*. Lamarck, Anim. sans vert., vol. vi. part 2. p. 219; Lister, Synop. Conch., pl. 814. f. 24; Sowerby, Genera of Shells, No. 24. f. 1; Kiener, Iconographie des Coquilles, pl. 1. f. 1. Reeve, Conch. Syst., vol. ii. pl. 206. f. 4.

Auricula flammis lateritiis, Martini.

Voluta flammea, Gmelin.

Bulimus variegatus, Bruguière.

Hab. ad insulam Java.

This shell, which is distinctly figured both by Lister and Martini, is marked with a number of flesh-coloured stripes, running in a longitudinal direction from the spire.

Var. *a.* *Strigis rubris in maculis semilunaribus apertè divisis.*

Reeve, Conch. Syst., vol. ii. pl. 206. f. 6.

Hab. ad insulam Ticao, Philippinarum.

A beautiful variety, in which the longitudinal flesh-coloured stripes are divided into distinct patches, of the form of a crescent. Found by Mr. Cuming at the island of Ticao, in sandy mud at seven fathoms' depth.

Var. *β.* *Testâ minore, maculis semilunaribus frequentioribus, indistinctis.*

Reeve, Conch. Syst., vol. ii. pl. 206. f. 1.

Hab. ad insulam Corrigidor, Philippinarum.

This variety is constantly smaller and of deeper colour; the crescent-shaped spots are thicker, and run so indistinctly the one into the other as often to be completely clouded over.

2. *TORNATELLA SOLIDULA*. Lamarck, Anim. sans vert., vol. vi. part 2. p. 220; Chemnitz, Conch., vol. x. pl. 149. f. 1405; Kiener, Iconographie des Coquilles, pl. 1. f. 2. Reeve, Conch. Syst., vol. ii. pl. 206. f. 7.

Voluta solidula, Linnæus.

Bulimus solidulus, Bruguière.

Hab. ad insulas Philippinarum, &c.

Several varieties of this shell, varying in colour from a bluish grey to a reddish brown, were found by Mr. Cuming amongst the Philippine Islands, in sandy mud at different depths, from 7 to 25 fathoms; they are, however, by no means confined to this locality.

3. *TORNATELLA COCCINATA*. *Torn. testâ cylindraceo-ovatâ, transversim striatâ, albâ, maculis coccineis minutis profusè ornatâ; epidermide luteâ, leviter indutâ; spirâ depresso-conicâ, suturis profundis, apice præcipuè exserto, acutissimo; columellâ biphicatâ, plicâ maximâ bilobâ.*

Reeve, Conch. Syst., vol. ii. pl. 206. f. 10.

Hab. ad insulam Mindanao, Philippinarum.

This beautiful shell is very distinct from any variety of the preceding; the spire, which is remarkably sharp-pointed at the apex, is somewhat depressed and rounded; and the shell altogether is covered with a number of small bright scarlet spots. It was found by Mr. Cuming at the island of Mindanao in sandy mud at the depth of twenty-five fathoms.

4. *TORNATELLA GLABRA*. *Torn. testâ ovatâ, transversim striatâ, albâ, nitidiusculâ, maculis leucophæis variè denigratâ; spirâ subulatâ, apice acuto; columellâ biphicatâ, plicâ maximâ vix bilobâ.*

Reeve, Conch. Syst., vol. ii. pl. 206. f. 12.

Hab. ad insulam Negros, Philippinarum.

Mr. Cuming collected several of this species at the island of Negros. The shell is by no means a new one, but it has been hitherto confounded with the *Tornatella solidula*, probably in consequence of its resemblance in colour. It differs in form, and besides being more highly polished, is stamped with a certain peculiarity of character by which it cannot fail to be recognised.

5. *TORNATELLA TESSELLATA*. *Torn. testâ oblongo-ovatâ, albâ, transversim striatâ, striis plus minusve approximatis, interstitiis maculis helvinis tessellatis; spirâ elatâ, apice præcipuè acuto; columellâ biphicatâ, plicâ maximâ parùm bilobâ.*

Reeve, Conch. Syst., vol. ii. pl. 206. f. 3.

Hab. In sinum Persicum.

This elegant little shell was found by Dr. Rüppell at the Red Sea, on the sands at low water. It is finely striated in a transverse direction, and the interstices are neatly tessellated with numerous pale flesh-coloured square spots.

6. *TORNATELLA FASCIATA*. Lamarck, Anim. sans vert., vol. vi. part 2. p. 220; Martini, Conch., vol. ii. pl. 43. f. 442 and 443; Encyclopédie Méthodique, pl. 452. f. 3. *a, b*; Kiener, Iconographie des Coquilles, pl. 1. f. 3; Reeve, Conch. Syst., vol. ii. pl. 206. f. 11.

Voluta tornatilis, Linnæus.

Auricula bifasciata, Martini.

Bulimus tornatilis, Bruguière.

Hab. ad oras Devonix, Insulæ Britannicæ.

Several of this well-known species have been recently dredged up from sandy mud at the depth of five fathoms, off the coast of Devonshire.

7. *TORNATELLA SIEBALDII*. *Torn. testâ ovato-conicâ, transversim striatâ, rubicundulâ, irregulariter dibaphâ, spirâ elatâ, suturis albis, apice acuto; columellâ uniplicatâ, aperturâ ovatâ, labro tenui, acuto.*

Hab. ad oras Japoniæ.

This shell, which was brought by Dr. Siebald from Japan, is irregularly stained with a ruddy brown, exhibiting the appearance of having been dyed in two distinct colours; the sutures of the spire are perfectly white, and so is also the columella.

8. *TORNATELLA BULLATA*. Kiener, Iconographie des Coquilles, pl. 1. f. 4; Lister, Synops. Conch., pl. 714.

Hab. Indian Seas.

A small cylindrical bulla-shaped shell, which we have not included in this monograph without considerable hesitation.

9. *TORNATELLA NITIDULA*. Lamarck, Anim. sans vert., vol. vi. part 2. p. 221; Encyclopédie Méthodique, pl. 452. f. 2. *a, b*; Sowerby, Genera of Shells, No. 24. f. 2; Kiener, Iconographie des Coquilles, pl. 1. f. 5; Reeve, Conch. Syst., vol. ii. pl. 206. f. 5.

Hab. ad insulam Bohol, Philippinarum, &c.

Some specimens of this shell, found by Mr. Cuming at the island of Bohol, in sandy mud at eleven fathoms' depth, are smaller and more cylindrical than those hitherto known.

10. *TORNATELLA VIRGATA*. *Torn. testâ rotundato-ovatâ, subcylindraceâ, albâ, transversim bellè striatâ, longitudinaliter strigis latis, nigerrimis, sinuosis, subdistantibus, vividè ornatâ; spirâ brevi, suturis distinctis, apice subobtusâ; columellâ uniplicatâ.*

Reeve, Conch. Syst., vol. ii. pl. 206. f. 8 and 9.

Hab. ad insulam Masbate, Philippinarum.

This is a beautiful shell, and very distinct from any other species; it is of a pure transparent white, ornamented with a regular series of broad dark black stripes running down from the spire. Found by Mr. Cuming at the island of Masbate, in sandy mud at the depth of seven fathoms.

11. *TORNATELLA VENUSTA*. D'Orbigny, Voyage dans l'Amérique Méridionale, Mollusques, p. 399. pl. 56. f. 4 to 6.

Hab. ad Peruviam, propé ad Paytam.

A small fusiform shell, highly deserving of the title by which D'Orbigny has distinguished it.

12. *TORNATELLA INSCULPTA*. *Torn. testá parvá, ovatá, sulcis parallelis numerosis transversè insculptá; spirá indistinctá, apice acuto; maculis subaquilis ubiquè pictá; columellá buplicatá, plicá maximá præcipuè bilobá.*

Reeve, Conch. Syst., vol. ii. pl. 206. f. 2.

Hab. ad insulam Masbate, Philippinarum.

It is to be regretted that Mr. Cuming did not succeed in obtaining live specimens of this very characteristic shell, of which he found two only, lying dead upon the sands at the island of Masbate. The spire is rather prominent, but still so indistinct as scarcely to exhibit the volution of the whorls; the shell is then neatly sculptured from the apex to the base with transverse lines running exactly parallel with each other, and the whole surface is painted with light brown spots.

13. *TORNATELLA ORYZA*. *Torn. testá minutá, oblongo-ovatá, eburneá, nitidá, transversim sulcatá, sulcis plus minusve approximatis; spirá regulari, apice subacuto; columellá uniplicatá; aperturá ovatá, supernè attenuatá; labro simplici, solido, acuto.*

Hab. ad insulam Cabbalonga, Philippinarum.

A small species, unlike any hitherto described; it is perfectly white (a fine ivory white), and deeply sulcated from top to bottom.

In concluding this monograph, it may be as well to state that the *Tornatellæ auricula* and *pedipes* of Lamarck should be referred to the genus *Auricula*. The *Tornatellæ* are strictly marine, dwelling in several fathoms' water; whilst the species just alluded to are inland, and amphibious, inhabiting swamps and marshy places.

May 24, 1842.

The Meeting was adjourned to June 14th.

June 14, 1842.

Richard Owen, Esq., Vice-President, in the Chair.

The following paper, by George Gulliver, Esq., F.R.S., entitled "Observations on the Muscular Fibres of the Œsophagus and Heart in some of the Vertebrate Animals," was read.

The present communication is a continuation of the observations on the muscular fibres of the œsophagus and heart published in the Proceedings of the Zoological Society, September 10, 1839, p. 124.

21. Pipistrelle (*Vespertilio Pipistrellus*, Gmel.).—The streaked muscular fibre was found on the whole length of the gullet, excepting the 1-16th of an inch of its cardiac end.

22. Hedgehog (*Erinaceus Europæus*, Linn.).—In this animal the striated or voluntary muscular fascicles form the sheath of the gullet to its termination in the stomach.

23. Mole (*Talpa Europæa*, Linn.).—Muscular sheath of the gullet the same as in the hedgehog.

24. Shrew (*Sorex tetragonurus*, Herm.).—The muscular sheath of the gullet the same as in the two preceding species.

25. Black Bear (*Ursus Americanus*, Pall.).—The muscular fibre of animal life formed a very thick and red sheath to the entire length of the gullet, and even extended in bands for an inch on the cardiac end of the stomach.

26. Wolf (*Canis Lupus*, Linn.).—The muscular fibre of animal life invested the whole length of the gullet, and extended scantily, for about two-thirds of an inch, on the cardiac end of the stomach.

27. African Civet Cat (*Viverra Civetta*, Linn.).—Two inches from the stomach the sheath of the gullet was composed chiefly of the muscular fibre of organic life mixed with a few of the muscular fibres of animal life; and within an inch and three-quarters from the stomach none of the latter fibres could be found on the gullet. Mr. Siddall examined the gullet of another civet cat with the same result.

28. Lion (*Felis Leo*, Linn.).—The muscular fibre of animal life could not be traced on the gullet further than four inches and a half from its ending in the stomach. Nearer to the cardiac orifice, especially about two inches therefrom, the œsophageal sheath was made up of bands containing corpuscles as in the horse*. Seven inches from the stomach the sheath of the gullet was composed of the muscular fibres of animal and organic life in nearly equal proportions.

29. Puma (*Felis concolor*, Linn.).—The muscular fibre of animal life, mixed with a greater proportion of the muscular fibre of organic

* See Proc. Zool. Soc. 1839, pp. 127 and 129; in which, p. 127, line 17, for gullet read *filaments*.

life, composed the œsophageal sheath about three inches from the stomach, where the gullet had been divided, and no opportunity was afforded of examining its last portion.

30. Chetah (*Felis jubata*, Linn.).—The muscular fibre of animal life was abundant on the gullet ten inches from the stomach, and extended more scantily three inches nearer to it. On the last six inches of the cardiac end of the gullet no muscular fibre of animal life could be found.

31. Weasel (*Mustela vulgaris*, Linn.). 32. Stoat (*M. erminea*, Linn.). 33. Polecat (*M. Putorius*, Linn.).—In these animals the muscular fibre of animal life was traced on the gullet to its termination in the stomach.

34. Seal (*Phoca vitulina*, Linn.).—The muscular fibre of animal life extended along the whole gullet, excepting about an inch of its cardiac end.

35. Porpoise (*Delphinus Phocæna*, Briss.).—In a young one weighing ten pounds, and said to have been extruded from the mother after her capture, June 13, 1842, the muscular fibre of animal life could be traced on the gullet no further than four inches from its stomachic end.

36. Paco (*Auchenia Paco*, Desm.).—The muscular fibre of animal life was detected on the gullet to its termination; an inch and a quarter from the stomach the muscular fibre of organic life was abundant on the gullet; and the muscular fibre of animal life only was found in the œsophageal sheath two inches from the stomach. The tissue under the mucous membrane around the water-cells resembled that of the middle coat of the stomach elsewhere, being quite destitute of anything like the muscular fibre of animal life.

37. Dromedary (*Camelus Dromedarius*, Linn.).—Muscular sheath of the gullet the same as in the Paco.

38. Wapiti Deer (*Cervus Wapiti*, Mitchell).—The muscular fibre of animal life invested the gullet to its termination.

39. Cervine (*Antilope Bubalis*, Pallas).—The œsophageal sheath was formed throughout of the muscular fibre of animal life, which extended for an inch on the stomach.

40. Palm Squirrel (*Sciurus Palmarum*, Briss.). 41. Common Squirrel (*S. vulgaris*, Linn.). 42. Golden Agouti (*Dasyprocta aurata*, F. Cuv.). 43. Water Rat (*Arvicola amphibia*, Desm.).—In these animals the muscular fibre of animal life completely invested the gullet, being abundant on its cardiac extremity.

44. Kangaroo (*Macropus Bennettii*, Waterhouse).—The muscular fibre of animal life was plentiful on the upper part of the gullet, and terminated between three and four inches from the stomach.

45. Squirrel Flying Opossum (*Petaurus sciureus*, Geoff.).—An inch and a quarter of the stomachic end of the gullet was without the muscular fibre of animal life, which was pretty abundant an inch further from the stomach.

I have ventured to apply the term voluntary to the striated muscular fascicles—extending along the entire length of the gullet, and even on the commencement of the cardiac extremity of the sto-

mach in several animals, along more or less only of the tube in man and some other mammals, and wholly absent from it in many of the lower Vertebrata—because this fibre has all the anatomical characters of the muscular fibre of animal life, which no completely involuntary muscle has hitherto been found to possess*. If we are to judge of the office of the fibre in question from its structure, it must be concluded that in many Vertebrata the whole length of the gullet is capable of voluntary motion, in some the lower or posterior portion is not obedient to the will, while in others the motions of the entire gullet must be quite involuntary.

That the muscular coat of the gullet should differ in animals of different orders will not appear surprising; but it was hardly to be supposed that a difference in the œsophageal sheath would be found in some genera of the same order. Yet such is the fact in the Feræ; and it is probable that further research into the anatomy of this order will disclose more differences in their minute structure, especially as my observations on the blood have shown that there is a remarkable diversity in the size of the blood-corpuscles or red particles of some of the subdivisions of the Carnivera†.

Perhaps the extent of the muscular coat of the gullet may vary in the same subject at different periods of life. In young and middle-aged mares and geldings some of the muscular fibre of animal life may be generally traced on the gullet four or five inches from the stomach; but in a gelding twenty-five years old this fibre could not be found on the last ten inches of the gullet; and in an aged rabbit I found the striated muscular fascicles but sparingly on the last inch of the gullet, although in this animal generally they are most abundant in this situation.

A summary of my inquiry concerning the extent of the voluntary muscular fibre on the gullet is subjoined. Some of the results may be modified by more facts, which are yet required to furnish a satisfactory view of the subject. I have had no opportunity of becoming acquainted with the researches of M. Ficinus and M. Valentin, referred to by Dr. Baly in his translation of Professor Müller's 'Physiology,' vol. ii. p. 851.

QUADRUMANA.

In this order, as in the human subject, the muscular fibre of animal life does not invest the lowest portion of the gullet.

CHEIROPTERA.

In the pipistrelle, the sheath of the gullet, excepting 1-16th of an inch at the stomachic end, was formed of the muscular fibre of animal life.

FERÆ.

Insectivora.—In the three British genera the muscular fibre of animal life covers the whole length of the gullet.

* See Proc. Zool. Soc. 1839, p. 128.

† Ibid. Nov. 24, 1840, and May 25 and June 8, 1841; and Appendix to Gerber's General Anatomy, p. 6-7.

Canidae.—The muscular fibre of animal life extends to the stomachic end of the gullet. In the silvery fox none of this fibre could indeed be detected on the terminal third of an inch of the gullet, which should be examined again in another individual.

Viverridae.—In the African civet cat the striated muscular fascicles do not cover the last portion of the gullet.

Felidae.—The stomachic end of the gullet is not clothed with the muscular fibre of animal life; but in the caracal a few irregular fibres were observed on the cardiac end of the gullet, perhaps belonging to the muscular fibre of animal life, although they were quite destitute either of transverse or longitudinal streaks.

Mustelidae.—In the otter the muscular fibre of animal life covers the gullet, excepting about half an inch of its stomachic extremity; in three species of *Mustela* this fibre invests the whole gullet.

Phocidae.—In the seal no muscular fibre of animal life was found on the gullet within an inch of the stomach.

Ursidae.—In the genus *Nasua*, and in the sloth-bear and American bear, the gullet is throughout clothed with the muscular fibre of animal life, which in the latter animals is very thick and red on the last portion of the gullet, and extends on the cardiac extremity of the stomach.

CETACEA.

In a porpoise no muscular fibre of animal life could be found on four inches of the stomachic end of the gullet, although this fibre was abundant on the rest of the thoracic portion of the gullet.

RUMINANTIA.

The voluntary muscular fibre runs along the entire length of the gullet, and sometimes to a short distance on the cardiac extremity of the stomach. The striated muscular fibre on the last portion of the gullet is often mixed with a much greater proportion of the muscular fibre of organic life.

RODENTIA.

The whole length of the gullet is clothed with the muscular fibre of animal life.

MARSUPIALIA.

In the kangaroo and the squirrel-flying opossum no muscular fibre of animal life was found on the stomachic end of the gullet.

BIRDS, REPTILES, AND FISHES.

I have carefully searched for the striated muscular fascicles in the gullet of the birds and reptiles mentioned in the table, but in vain. In Birds the fibre of the superficial coat of the gullet is often disposed transversely, in which respect it may be seen with the naked eye to differ from the œsophageal muscular sheath of mammals. In a few fishes the striated muscular fascicles invested the entire length of the gullet, and extended some distance on the stomach in others, as in the pike and bull-head. In the barbel some of

these fascicles were found on the gullet or termination of the pharynx opposite to the posterior border of the gill-cover. In Fishes the striated muscular fasciculi of the gullet appear, from the measurements now given, to be much smaller than the fasciculi of the muscles of the body; and a like difference, though to a much smaller degree, often exists in mammals.

In the heart of the smaller species of the lower Vertebrata distinct muscular fibres are often not to be found, the structure being less distinct than in the heart of many mammals; generally composed of bands or fillets not easily separable from each other, and commonly about $\frac{1}{3000}$ th of an inch broad. These fillets are seldom clearly streaked transversely; they are irregularly and most minutely granulated, without the longitudinal arrangement of the granules so plainly visible in the beaded primitive fibrils of the heart of Mammalia. In short, the known points of resemblance between the muscular fibre of the heart of mammals and that of voluntary muscle are generally wanting in the structure of the heart of the smaller species of the lower Vertebrata, for the latter is more nearly allied to the muscular tissue of organic life as it exists in other parts.

In some of the voluntary muscles of many of the smaller Mammalia and Birds, as the common mouse and *Fringillidæ*, the existence of a sheath around the fibres appears to be questionable; and in the heart of such animals the fibres are remarkably indistinct. In the common water-vole I noticed a very clear appearance of primitive fibrils, yet these seemed to be nowhere collected into fascicles. In the great pectoral muscle of various small birds, as the common swift, the transverse streaks are very indistinct, and often difficult to be seen, although they are very plain in the muscles of the leg; yet in this bird the former muscle is highly developed, and almost constantly in action, while the latter are but small and little used. It will be recollected that the above remarks apply only to particular muscles, and are not to be considered as at all invalidating the admirable demonstration of the sarcolemma in many muscles by Prof. Schwann and Mr. Bowman, and the parallel observations of Dr. Jones Quain and Mr. W. J. E. Wilson*. As before observed, the fibres of the heart of Mammalia seem to have no intervening cellular (filamentous) tissue; this tissue, however, is easily observed in the heart of many lower vertebrate animals; and I have very recently seen minute wavy filaments, having all the characters of cellular tissue, in the heart of the bear, and of some other mammals which had died in confinement.

It will be seen that the term fibre, as used in this paper, corresponds to the primitive fasciculus of Fontana, Müller, and Bowman†. As in the heart there is often a tolerably clear appearance of fascicles, and as frequently only of the fillet-like bands, both have been set down in the following table as fibres: and the larger size of the fascicles will at once distinguish them from the bands, the primitive

* See Phil. Trans. part ii. 1840, p. 475.

† Loc. cit. p. 458.

fibrils of the muscular tissue being out of the question. In the snake and newt the bands composed the tissue of the auricles, while a collection of these bands into fascicles appeared and was measured in the ventricles; the measurements will show many parallel instances, and one in which the fascicles appeared in the auricle and the bands in the ventricle. The numbers in the table represent the diameters of the fibres in vulgar fractions of an English inch, and where one only occurs it expresses the average size. The terms auricle and ventricle, under the column headed "Muscle," refer to the heart. The animals, unless noted to the contrary, were adults that had been dead some time before they were examined. In making many of the measurements I have been indebted to the kind assistance of Mr. Siddall.

Table of Measurements of the Fibres of the Heart and of some Muscles of Voluntary Motion in Vertebrate Animals.

Animal.	Muscle.	Diameter.	
		In the Heart.	In Voluntary Muscle.
<i>Cercopithecus sabæus</i> , <i>Desm.</i>	Ventricles	1-1333 to 1-1000	1-1000 to 1-666
	Gullet		
<i>C. griseo-viridis</i> , <i>Desm.</i>	Ventricles	Ditto	Ditto.
	Gullet		
<i>C. Æthiops</i> , <i>Geoff.</i>	Ventricles	Ditto	Ditto.
	Gullet		
<i>Macacus Rhesus</i> , <i>Desm.</i>	Ventricles	1-1000	1-800 to 1-555
	Gullet		
<i>M. Inuus</i> , <i>Desm.</i>			1-666 to 1-500
<i>Cebus capucinus</i> , <i>Geoff.</i>	Gullet		1-800 to 1-500
<i>Lemur albifrons</i> , <i>Geoff.</i>	Diaphragm		1-666 to 1-300
<i>Piccotus auritus</i> , <i>Geoff.</i>	Right ventricle..	1-1600 to 1-800	1-888 to 1-571
	Pectoral		
	Of the ear		
<i>Vespertilio noctula</i> , <i>Schreb.</i> ..	Ventricles	1-2000 to 1-1000	1-1143 to 1-666
<i>Vespertilio Pipistrellus</i> , <i>Gmel.</i>	Ventricle	1-2000 to 1-1067	
	Gullet		
<i>Erinaceus Europæus</i> , <i>Linn.</i>	Ventricles	1-2666 to 1-1000	1-1333
	Cutaneous		
	Gullet		1-1000 to 1-571
<i>Sorex tetragonurus</i> , <i>Herm.</i>	Ventricles	1-2666 to 1-1333	1-1000 to 1-500
	Pectoral		1-555
	Gullet		1-1145
<i>Talpa Europæa</i> , <i>Linn.</i>	Ventricles	1-3000 to 1-1133	1-1333 to 1-660
	Gullet		
<i>Nasua fusca</i> , <i>Desm.</i>	Gullet		1-888 to 1-333
<i>Ursus labiatus</i> , <i>Blainv.</i>	Left ventricle ..	1-2000 to 1-1600	1-800 to 1-373
<i>Ursus Americanus</i> , <i>Pall.</i> ...	Ventricles	1-1500 to 1-666	
	Left auricle	1-2000 to 1-800	
	Gullet		
<i>Canis familiaris</i> , <i>Linn.</i>	Auricles and ven- tricles	1-2400 to 1-800	1-800 to 1-400
	Gullet		
	Diaphragm		1-800 to 1-285

Table (continued).

Animal.	Muscle.	Diameter.	
		In the Heart.	In Voluntary Muscle.
Canis familiaris, <i>Linn.</i> (12 days old)	Ventricles	1-2666 to 1-2000	
	Gullet		1-2000 to 1-1333
Ditto (18 weeks old)	Gullet		1-1333 to 1-800
Canis vulpes, <i>Linn.</i>	Left ventricle ...	1-1600 to 1-1333	
	Gullet		1-800 to 1-500
C. lagopus, <i>Linn.</i>	Gullet		1-1000 to 1-533
C. argentatus, <i>Desm.</i>	Ventricles	1-1333 to 1-1000	
	Gullet		1-1000 to 1-600
C. Lupus, <i>Linn.</i>	Left ventricle ...	1-1600 to 1-800	
	Left auricle	1-1600 to 1-1000	
	Gullet		1-1400 to 1-285
Viverra Civetta, <i>Linn.</i>	Left ventricle ...	1-2000 to 1-1777	
	Gullet		1-570
Felis Leo, <i>Linn.</i> (two-thirds grown)	Ventricles	1-2000 to 1-1777	
	Gullet		1-571
F. concolor, <i>Linn.</i>	Left ventricle ...	1-2000 to 1-1333	
	Left auricle	1-4000 to 1-2000	
	Gullet		1-500 to 1-400
F. Leopardus, <i>Linn.</i>	Left ventricle ...	1-2666 to 1-700	
	Gullet		1-500 to 1-333
F. jubata, <i>Linn.</i>	Left ventricle ...	1-1600 to 1-1000	
	Gullet		1-888 to 1-400
F. cervaria, <i>Temm.</i>	Ventricles	1-2000 to 1-1333	
	Gullet		1-1000 to 1-373
F. Caracal, <i>Gmel.</i>	Left ventricle ...	1-1600 to 1-1000	
	Gullet		1-1000 to 1-666
F. domestica, <i>Briss.</i> (16 days old)	Ventricles	1-3200	
	Gullet		1-1600 to 1-660
Mustela vulgaris, <i>Linn.</i>	Left ventricle ...	1-2000 to 1-1000	
	Left auricle	1-2666 to 1-1333	
	Gullet		1-1333 to 1-800
M. erminea, <i>Linn.</i>	Right ventricle...	1-1777 to 1-1000	
	Right auricle ...	1-2000 to 1-1145	
	Gullet		1-1000 to 1-571
Lutra vulgaris, <i>Erxl.</i>	Ventricles	1-2000 to 1-1143	
	Gullet		1-800 to 1-500
Phoca vitulina, <i>Linn.</i>	Ventricles and auricles	1-3000 to 1-1600	
	Gullet		1-2000 to 1-1000
Delphinus Phocaena, <i>Linn.</i> (just born)	Ventricle	1-4000	
	Scapular		1-888
	Gullet		1-2000
Equus Caballus, <i>Linn.</i>	Ventricles	1-2000 to 1-666	
	Diaphragm		1-555 to 1-360
	Gullet		1-444 to 1-266
Camelus Dromedarius, <i>Linn.</i>	Right ventricle...	1-1143 to 1-1000	
	Gullet		1-1143 to 1-333
	Diaphragm		1-400 to 1-222
	Femoral		1-250 to 1-222
Ovis Aries, <i>Linn.</i>	Gullet		1-666 to 1-250

Table (continued).

Animal.	Muscle.	Diameter.	
		In the Heart.	In Voluntary Muscle.
Ovis Tragelaphus, <i>Desm.</i> ...	Auricles and ventricles	1-1777 to 1-1143	
	Gullet		1-800 to 1-400
Capra Hircus, var., <i>Linn.</i> ...	Left ventricle ...	1-2666 to 1-1333	
	Gullet		1-666
Antilope Bubalis, <i>Pall.</i>	Ventricles	1-1600 to 1-1000	
	Auricles	1-4000 to 1-2000	
	Gullet		1-1777 to 1-555
Cervus Wapiti, <i>Mit.</i>	Gullet		1-666 to 1-400
C. Dama, <i>Linn.</i>	Masseter		1-1000 to 1-333
	Gullet		1-400
Ditto (fœtus, 6 inches long).	Ventricles	1-4000	
	Diaphragm		1-1600
Ditto (20 inches long)	Left ventricle ...	1-3200	
	Gullet		1-2666
Lepus cuniculus, <i>Linn.</i>	Left ventricle ...	1-3000 to 1-1000	
	Diaphragm		1-800 to 1-333
	Gullet		1-1000 to 1-600
	Pectoral & Psoas		1-533 to 1-400
L. timidus, <i>Linn.</i>	Left ventricle ...	1-2000 to 1-800	
Dasyprocta aurata, <i>F. Cuv.</i> ...	Gullet		1-470
Sciurus Palmarum, <i>Eriss.</i> ...	Gullet		1-1000
S. vulgaris, <i>Linn.</i>	Left ventricle ...	1-2000 to 1-1000	
	Pectoral		1-600 to 1-444
Cavia Cobaya, <i>Gmel.</i>	Right ventricle...	1-1333 to 1-800	
	Auricles	1-2400 to 1-1714	
	Gullet		1-1600 to 1-400
Ditto (just born)	Left ventricle ...	1-3200 to 1-2000	
	Gullet		1-2000 to 1-1000
Mus decumanus, <i>Linn.</i>	Ventricle (bands)	1-4000 to 1-2666	
	Ditto (fascicles)	1-1333 to 1-800	
	Pectoral		1-800 to 1-383
Arvicola amphibibia, <i>Desm.</i> ...	Diaphragm		1-500 to 1-444
	Pectoral		1-444 to 1-263
	Gullet		1-666
Macropus Bennettii, <i>Waterh.</i>	Left ventricle ...	1-1333 to 1-800	
	Gullet		1-1000 to 1-333
	Diaphragm and Psoas		1-888 to 1-307
Petaurus sciureus, <i>Geoff.</i> ...	Ventricle	1-1600 to 1-800	
	Gullet		1-666 to 1-440
Strix flammea, <i>Linn.</i>	Ventricles	1-3200 to 1-2000	
	Pectoral		1-727 to 1-333
Garrulus glandarius, <i>Flem.</i> ...	Ventricle	1-3000 to 1-1333	
	Pectoral		1-555 to 1-400
Corvus Pica, <i>Linn.</i>	Ventricles	1-3000 to 1-1455	
	Pectoral		1-666 to 1-400
Ditto (one-third grown).....	Ventricle	1-4000 to 1-1600	
	Pectoral		1-2000 to 1-1333
C. monedula, <i>Linn.</i>	Ventricle	1-2400 to 1-2000	
	Pectoral		1-800 to 1-500
C. frugilegus, <i>Linn.</i>	Ventricle	1-3000 to 1-1600	
Sturnus vulgaris, <i>Linn.</i>	Ventricle	1-4000 to 1-2000	
	Pectoral		1-666 to 1-422

Table (continued).

Animal.	Muscle.	Diameter.	
		In the Heart.	In Voluntary Muscle.
<i>Sylvia Luscinia</i> , <i>Lath.</i>	Ventricle	1-3200	
<i>Turdus musicus</i> , <i>Linn.</i>	Ventricle	1-2666 to 1-1090	
	Pectoral		1-800 to 1-500
<i>Motacilla alba</i> , <i>Linn.</i>	Ventricle	1-4000 to 1-2666	
	Pectoral		1-500
<i>Fringilla domestica</i> , <i>Linn.</i> ...	Ventricle	1-2666 to 1-1714	
	Pectoral		1-666 to 1-300
<i>F. Chloris</i> , <i>Temm.</i>	Ventricle	1-2400 to 1-1714	
	Pectoral		1-666 to 1-500
<i>Parus cæruleus</i> , <i>Linn.</i>	Ventricle	1-3000 to 1-2000	
	Pectoral		1-570 to 1-400
<i>P. caudatus</i> , <i>Linn.</i>	Ventricle	1-2900 to 1-2000	
	Cervical		1-1000 to 1-800
	Pectoral		1-666 to 1-500
<i>Picus minor</i> , <i>Linn.</i>	Ventricle	1-4000 to 1-1777	
	Pectoral		1-800 to 1-300
<i>Cuculus canorus</i> , <i>Linn.</i>	Ventricle	1-4000 to 1-2000	
	Pectoral		1-500
<i>Cypselus Apus</i> , <i>Flem.</i>	Ventricle	1-4000 to 1-1777	
	Pectoral		1-666 to 1-400
<i>Columba domestica</i> , <i>Auct.</i> ...	Ventricles	1-3200 to 1-1600	
	Trapezius		1-1000 to 1-470
<i>Phasianus nycthemerus</i> , <i>Auct.</i>	Ventricles (bands)	1-4000 to 1-2666	
<i>Gallus domesticus</i> , <i>Auct.</i> ...	Heart (bands) ...	1-4000 to 1-2666	
	Pectoral		1-363 to 1-300
<i>Struthio Camelus</i> , <i>Linn.</i>	Ventricle	1-3000 to 1-1600	
	Auricle	1-4000 to 1-2000	
	Abdominal		1-400
<i>Anthropoides Virgo</i> , <i>Vieill.</i> ...	Ventricle	1-4000 to 1-2666	
<i>Ardea cinerea</i> , <i>Lath.</i> (half-grown)	Ventricles	1-4000 to 1-2666	
	Pectoral		1-2000 to 1-666
	Cervical		1-800 to 1-400
<i>Gallinula chloropus</i> , <i>Lath.</i> ...	Ventricle	1-2666 to 1-1000	
	Pectoral		1-1333 to 1-570
<i>Sterna Hirundo</i> , <i>Linn.</i>	Ventricles	1-4000 to 1-2000	
	Pectoral		1-800 to 1-666
<i>Anas galericulata</i> , <i>Auct.</i>	Ventricle (bands)	1-5333 to 1-2000	
<i>Somateria mollissima</i> , <i>Leach.</i>	Ventricle (bands)	1-4000 to 1-3200	
	Pectoral		1-800 to 1-500
<i>Natrix torquata</i> , <i>Ray</i>	Auricle (bands)	1-5000 to 1-3000	
	Ventricle (fascicles)	1-1000 to 1-600	
	Dorsal		1-444 to 1-270
<i>Anguis fragilis</i> , <i>Linn.</i>	Ventricle (bands)	1-4570 to 1-2000	
	Dorsal		1-400 to 1-290
<i>Vipera communis</i> , <i>Leach</i> ...	Ventricle (bands)	1-6000 to 1-2900	
	Intercostal		1-200 to 1-222
<i>Rana temporaria</i> , <i>Linn.</i>	Femoral		1-300 to 1-120
	Ventricle	1-4500 to 1-2400	
<i>Triton palustris</i> , <i>Flem.</i>	Ventricle	1-1000 to 1-666	
	Auricle	1-5000 to 1-2000	
	Femoral		1-500 to 1-266
<i>Iguana Cyclura</i> , <i>Cuv.</i>	Ventricle (bands)	1-4000	

Table (continued).

Animal.	Muscle.	Diameter.	
		In the Heart.	In Voluntary Muscle.
Iguana Cyclura, Cuv.	Auricle(fascicles)	1-1000	
Alligator	Pectoral		1-240 to 1-100
	Ventricle and auricle	1-4000 to 1-2000	
	Abdominal		1-400 to 1-123
Testudo Græca, Auct.	Femoral		1-500 to 1-400
Cottus Gobio, Linn.	Gullet		1-1714 to 1-666
	Dorsal		1-400 to 1-141
Cyprinus Cephalus, Linn. ...	Dorsal		1-266 to 1-150
C. Barbus, Linn.	Ventricle	1-5333 to 1-2666	
	Dorsal		1-240 to 1-160
	Gullet		1-1200 to 1-571
Anguilla vulgaris, Linn.	Gullet		1-2000 to 1-888
	Dorsal		1-600 to 1-150

Mr. Gould exhibited to the Meeting an extensive collection of Australian *Halcyonidæ*, and characterized two new species belonging to this family as follows:—

HALCYON PLATYROSTRIS. *Halc. capite, dorsoque ex æruginè viridibus; alis caudâque virescenti-cæruleis; gulâ pallidè luteolâ, hoc colore gradatim apud nucham et partes corporis inferiores in ceruinum, vel arenaceo-luteolum transeunte.*

Spot before the eye buff; head and back verditer green; wings and tail greenish blue; throat very pale buff, gradually passing into the rich sandy buff of the back of the neck and the whole of the under surface; bill black; the base of the under surface of the lower mandible flesh-white.

Total length, $7\frac{1}{4}$ inches; bill, $1\frac{3}{4}$; wing, $3\frac{1}{4}$; tail, $2\frac{1}{2}$; tarsi, $\frac{1}{2}$.

Hab. Navigators Islands.

For the knowledge of this new species Mr. Gould is indebted to the kindness of Mr. Cunningham, who collected it, and to Mr. Bennett, at Sydney, at whose suggestion Mr. Cunningham presented it, with some other interesting birds, to Mr. Gould, for the advancement of zoological science.

HALCYON SORDIDUS. *Halc. capite, dorso, plumis scapularibus tetricibusque alarum fusciscenti-virescentibus, alis virescenti-cæruleis, tertiariis ad apicem viridi-tinctis; caudâ virescenti-cæruleâ; torque collarii, corporeque inferiore pallidè luteolis.*

Hab. North coast of Australia.

Head, back, scapularies and wing-coverts brownish oil-green; wings greenish blue, gradually changing into green on the tips of the tertiaries; collar surrounding the back of the neck and all the under surface buffy white; tail greenish blue; upper mandible and tip of the lower one black; base of the latter flesh-white.

Total length, 9 inches; bill, $2\frac{1}{4}$; wing, $4\frac{1}{4}$; tail, 3; tarsi, $\frac{5}{8}$.

From the collection of Benjamin Bynoe, Esq.

June 28, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

A Monograph on the Coleopterous family *Phyllophorida*, by the Rev. F. W. Hope, was read. Following are the characters of the new species and genera contained in this paper.

Family PHYLLOPHORIDÆ, Hope.

Genus *Phyllophorus*, Hope.

Fœmina antennis filiformibus 11-articulatis, articulo 1^{mo} magno, externè crassiore, duobus proximis brevibus, 7 sequentibus gradatim increscentibus et ferè trigonis, ultimo autem ovale, apice parum minori. *Palpi* haud securiformes. *Caput* impressum, maxillis obtusis unidentatis. *Thorax* lateribus carinatis, angulis posticis subspinosus, anticis subrotundatis. *Elytra* thorace quintuplo longiora, sulcata et rugosa, lateribus elevatis.

Phyllophorus gigas. *Elater gigas*, Fab., Syst. Eleut.

Genus *Tetralobus*, Serville.

Tetralobus flabellicornis. *Elater flabellicornis*, Fab.

Tetralobus cinereus, Gory, Ann. de la Soc. Ent. de France, tom. i. p. 220. pl. 4. fig. 1.

TETRALOBUS GORYI. *Tetr. Mas, fusco-cinereus, capite ferè quadrato, anticè subexcavato, angulis anterioribus rotundatis. Thorax marginatus, valdè convexus, ad scutellum elevatus, utrinque depressus, angulis posticis obliquè acutis. Elytra thorace triplo longiora, posticè rotundata, lineis elevatis parum distinctis, tomentosa. Corpus infrà piceo-cinereum, pectore pubescenti. Pedes tomentosi, femoribus compressis, tibiis subarcuatis, tarsisque flavo-membranaceis. Annuli abdominis utrinque foveolati. Long. corp. 18½ lin.; lat. 5½ lin.*

Hab. forsitan in Africâ.

Fœmina differt, long. 21 lin., lat. 6 lin.; antennis serratis, articulo ultimo tribus antecedentibus æquali, subacuto, abdomine multo convexiore.

A small variety of the above species exists in the rich cabinet of M. Dupont at Paris, and has been named by him *T. Sennarius*. It measures twenty lines in length, and differs also in the colour of its pubescence.

TETRALOBUS DUPONTI. *Tetr. nigro-cinereus, capite ferè quadrato, anticè excavato, tomentoso, angulis anticis rotundatis. Thorax convexus, subtilissime punctulatus haud foveis binis in medio im-*

pressus. Elytra thorace triplo longiora, ad suturam subacuminata, lineis vix distinctis. Corpus infra piceum, tomentosum, binis ultimis annulis foveis, utrinque fortiter impressis. Pedes, femoribus, tibiisque compressis. Long. corp. 28 lin.; lat. 9 lin.

In Musæo Dom. Dupont.

It is probable that the above species is from Africa. It was received by Mr. Dupont (in whose honour it is named) from a foreign traveller, who is lately dead. No locality is mentioned. The antennæ are imperfect.

TETRALOBUS SAVAGEI. *Tetr. totum corpus supra fusco-brunneum, aurantiisque capillis obsitum. Caput ferè quadratum, angulis anticis rotundatis, anticè excavatum. Thorax convexus, angulis posticis acutis. Elytra thorace duplo longiora, auratæque pubescentiâ tecta. Corpus infra abdomine piceo, pectore aurantiis capillis longis obsito, femoribus tibiis piceis tarsisque infra auricomatis. Long. corp. 13 lin.; lat. 4 lin.*

The above species I have much satisfaction in naming after an American clergyman, the Rev. T. S. Savage. His zeal in the collecting of insects in Western Africa has tended to add greatly to our stock of information regarding the entomology of those countries. Respecting the Goliath Beetles, he has in store for us many important observations, having collected them in the bush: his remarks on them may shortly be expected to arrive in this country.

Tetralobus Australasiæ. Gory, Ann. de la Soc. Ent. de France.

TETRALOBUS FORTNUMI. *Tetr. totum corpus fuscum, auratâ pubescentiâ tectum, antennisque pedibus ferrugineis, elytrisque suturâ acuminatis. Caput vix emarginatum punctatum, fronte foveâ anticè impressâ. Antennæ ferruginæ. Fasciculus antennarum e lamellis novem rubro-ferrugineis. Thorax angulis anticis lateralibus, porrectis rotundatis; posticis acutis, disco varioloso-punctato, lineâque longitudinali parum impressâ. Scutellum posticè rotundatum. Elytra striato-punctata, striis punctis fortiter impressis, internè acuminata, externèque rotundata. Corpus infra atro-piceum aureo tomentosum, capillis pectoris longioribus. Pedes ferruginei, tarsis subtus pallidioribus et excavatis. Long. corp. 12 lin.; lat. 3 lin.*

The above insect was lately sent to this country by Mr. Fortnum, from the new settlement of Adelaide, and although closely allied to *T. Australasiæ* of Gory, is yet distinct; it is the smallest species that has fallen under my notice, and has been named in honour of the above assiduous collector.

TETRALOBUS PARRYI. *Tetr. niger, capite ferè quadrato, antrorsum foveolato, angulis anticis parum rotundatis. Oculis flavis. Thorax latus punctulatus. Elytra thorace triplo longiora, depressa, striata, striis valdè distinctis. Corpus infra nigrum, segmentis abdominis utrinque foveolatis, pedibus piceis, antennis ferrugineis. Long. corp. 18 lin.; lat. 6½ lin.*

Hab. in Nubiâ. In Musæo Dom. Parry.

Captain Frederick Parry lately received this species in a box with

other Nubian insects. It is of a remarkably depressed form, approaching somewhat in this respect to *Tetralobus Goryi*, which latter insect, however, is certainly much more convex, and differs from it also in various other minor points.

TETRALOBUS MANGLESII. *Fam. fusco-picea, antennis articulo primo concolore, reliquis ferrugineis. Caput ferè quadratum, punctatum, oculis rubris et nitidis. Thorax valdè convexus, angulis anticis rotundatis, posticis acutis, lined longitudinali mediâ, foveâ utrinque compressâ insignitus. Elytra vix acuminata, striato-punctata. Corpus infrâ rubro-piceum, antennis tarsisque ferrugineis. Long. corp. 17 lin.; lat. $4\frac{1}{4}$ lin.*

Hab. in Novâ Hollandiâ.

The above insect was sent to me by Capt. Mangles, the Egyptian traveller, in whose honour it is named. He received it from the vicinity of the Swan River.

Since the above was written, I have discovered the male in the collection of the Linnean Society, and the following is a concise description of it:—

Fusco-piceus, articulo primo nigricanti, reliquis ferrugineo flabellatis. Caput ferè quadratum, vix emarginatum. Thorax convexus, marginibus lateralibus subcarinatus. Scutellum valdè depressum. Elytra acuminata, substriato-punctata et sparsim punctulata. Corpus infrâ fusco-piceum, pectore auratâ pubescentiâ tecto, pedibus ferrugineis et auricomatis.

TETRALOBUS AURICOMUS. *Tetr. aureo-tomentosus, antennis flabellatis nigris, thorace posticè producto, elytris thorace triplo longioribus, auricomatis, apicibus rotundatis. Corpus infrâ aureo-tomentosum, pedibus concoloribus. Caput anticè rotundatum, fronte subfoveolatâ. Antennæ articulo 1^{mo} inæquali elongato subsecuriformi, 2^{da} et 3^{tio} minutis, reliquis trigono-ramosis, ultimo sublongo compresso, apice emarginato. Thorax anticè rotundatus, convexus, in medio disci foveâ utrinque impressâ, angulisque posticis acutis. Elytra auricomata vix sublineata. Corpus infrâ tomentosum, annulis abdominis utrinque subimpressis. Long. corp. 12 lin.; lat. $3\frac{3}{4}$ lin.*

In Musæo Dom. Guérin.

Hab. in Africâ.

Since the above description was written a more exact locality has been given me.

Hab. "Le fort de Sedou, au bord de la rivière Casamance, découvert par M. le Capitaine Mion."

TETRALOBUS ROBUSTUS. *Fam. flavo-fusca, antennis valdè compressis. Caput anticè excavatum, flavisque capillis obsitum. Thorax convexus, angulis anticis rotundatis, posticis acutis. Elytra striata, ad apicem dehiscentia, subacuta. Corpus infrâ flavofuscum, pectore aurato tomento obsito pedibusque concoloribus.*

From the remarkable compressed antennæ I am inclined to consider this insect, which was received from the island of Madagascar,

as the type of a distinct genus. The following characters may be deemed sufficient to mark its peculiarities, which are chiefly taken from the antennæ, and hence it has been named

*Piezophyllus**.

Caput rotundatum, *antennis* valdè compressis, undecim articulatis, articulo 1^{mo} crasso, 2^{do} brevi, octo sequentibus gradatim decrescentibus, ultimo apice acuto. *Thorax* angulis anticis rotundatis, posticis acutis. *Elytra* subacuminata e suturâ dehiscentia lateribus medio subsinuatis. *Pedes* robusti, *tibiis* subincurvis.

Other peculiarities might be mentioned; but as it is well-figured, however, its other characters may easily be distinguished.

PIEZOPHYLLUS SHUCKHARDI. *Tetr. atro-piceus, capite ferè quadrato, anticè parum excavato, angulis anticis subobliquè truncatis antennisque ferrugineis. Antennæ articulo 1^{mo} ferè trigono, crasso, 2^{do} 3^{to} brevibus, 7 sequentibus lamelligeris; antennis capite thoraceque æqualibus. Thorax valdè convexus, lateribus carinuld insignitis, angulisque posticis subacutis. Elytra sulcata. Corpus infrâ atro-piceum, pectore hirsuto, flavisque capillis longis obsito. Pedes picei, auricomi, femoribus tibiisque subcompressis. Long. corp. 24 lin.; lat. 7 lin. ♀ Long. corp. 21 lin.; lat. 7 lin.*

I am indebted to Mr. Shuckhard for the above insect, and the species is most probably the *Tetralobus Dumolinii* of Dupont's cabinet. The antennæ and tarsi of this specimen were in too imperfect a state to describe.

PIEZOPHYLLUS SPENCEI. *Tetr. niger, antennis fusco-piceis, articulo primo nigricante. Caput ferè quadratum, anticè excavatum. Thorax robustus, valdè convexus, lineâ longitudinali impressâ foveâque utrinque insignitus et creberrimè punctulatus, angulis posticis ferè rectis et acutis, carinuld abruptè interruptâ. Elytra ad apicem dehiscentia, subacuta. Corpus infrâ atrum, pectore auricomato pedibusque concoloribus. Long. corp. 16 lin.*

Hab. in agro Senegalensi.

This singular insect is described from the rich cabinet of Monsieur Dupont in Paris, and it appears to belong to the same subgenus as *Tetr. Shuckhardi*. The same insect I have seen before, and as it was named after Mr. Spence, the celebrated entomologist, I have retained that name.

Oxynterus† *mucronatus.* *Elater mucronatus*, Olivier.

Olivier suspects that this insect is the female figured by Voet (vid. Coleop. tab. 45. fig. 34.); it was originally described from the cabinet of the Prince of Orange, and certainly differs from the *Flabellicornis* of Drury, which Olivier seems to doubt. The following short Latin characters separate it at once from *Tetralobus*.

* *Piezophyllus*, from *πέζω* *premo*, et *φύλλον* *folium*.

Genus *Oxynopterus**, Hope.

Caput anticè subemarginatum, antennis ♂ apicibus flabellatis elytrisque in utroque sexu acuminatis. *Thorax* angulis anticis ferè rotundatis, posticis acutis. *Elytra* striata et mucronata, pedibus veluti in *Tetralobo*.

Each joint of all the tarsi is clothed beneath with a row of short golden-coloured plush, as in other species belonging to this genus.

OXYNOPTERUS AUDOUINI. *Oxyn.*, *Mas.* *brunneo-cinereus*, *capite fortiter excavato*, *parum tomentoso*. *Thorax emarginatus*, *posticè subsinuatus*, *anticè aurantiis capillis obsitus*, *depressus*. *Scutellum rotundatum*. *Elytra brunneo-cinerea*, *parum tomentosa*. *Corpus infrà nigro-cinereum*. *Pedes concolores*, *femoribus tibiisque compressis*, *tarsisque piceis*. Long. corp. 62 lin. ; lat. 23 lin.

The above species was described by me, during my late residence in Paris, from the collection at the Jardin des Plantes. It is named in remembrance of the late Professor Audouin, who succeeded to the entomological chair held by the celebrated Latreille. The locality was not stated ; I believe it, however, to be from the East Indies, although I cannot actually specify its real locality. It seems to differ considerably from *mucronatus* of Olivier.

OXYNOPTERUS CUMINGII. *Oxyn. fusco-flavus*, *antennis ferrugineis*. *Caput clypeo rotundato atro*, *medio disci subsulcato*. *Thorax fuscus*, *marginibus elevatis*, *angulis anticis parum productis*, *posticis acutis et extùs divergentibus*. *Scutellum posticè rotundatum atrum*. *Elytra acuminata fusco-flava*, *tribus lineis parùm elevatis insignita*. *Corpus infrà atro-piceum*, *femoribus concoloribus*. *Mesososternum fortiter excavatum*, *cornu aprosterni ad medios pedes porrecto*. Long. corp. 36 lin. ; lat. 11 lin.

Fœmina magnitudine differt, thorace etiam paullo latiore antennisque compressis.

The light castaneous appearance of the elytra of the above insect must in a great measure be attributed to abrasion : when recently captured it was remarkable no doubt for a golden pubescence above and beneath, which is a characteristic of other allied species. The above magnificent species is named in honour of Mr. Cuming the conchologist, whose important discoveries at Manilla in various branches of zoology entitle him to the thanks of the naturalists of England. It may be mentioned with regard to the above insects, that the joints of all the tarsi are clothed with a row of short golden-coloured plush ; the head and thorax are covered also with very short gray pile, and in the male the elytra are fulvous red, whilst in the female they are saturated on the disc with brown ; the latter sex is also a quarter of an inch larger than the male. It is also worthy of notice that the joints of the antennæ to which the leaflets are attached gradually increase after the third joint, the extreme being the most marked.

* From *ὀξύων*, *acuo*, and *πτερόν*, *penna*.

OXYNOPTERUS LATIPENNIS. *Nigro-fuscus, antennis concoloribus, elytris acuminatis et piceis. Caput ferè quadratum, anticè excavatum rugoso-punctatum. Thorax latus, angulis anticis vix productis, posticis acutis, lateribus marginibus elevatis. Elytra atro-picea tomentosa, apicibus acutis. Corpus infrà nigrum, pedibus ferrugineis. Long. corp. 24 lin. ; lat. 8 lin.*

Hab. in Africâ.

The above species was received by me in a box of insects from the Cape of Good Hope : for some time I was induced to regard it as an Asiatic species, but since I have lately received a species nearly similar in form from Sierra Leone, it may be an African insect. It is remarkably broad for a male ; the disc of the thorax also is slightly convex. A label attached to it has 'Gold Coast' written on it.

In Musæo Dom. Hope.

Fœmina adhuc latet.

OXYNOPTERUS JAVANUS. *Oxyn. fusco-flavus et aureo-tomentosus, antennis ferrugineis. Caput atrum, antennis thorace ferè duplo longioribus. Thorax anticè emarginatus, angulis utrinque productis, posticis acutis et divergentibus. Elytra acuminata fusco-picea aurato-tomentosa. Corpus infrà nigrum, pedibus nigricantibus tomento suprâ aspersis, tarsisque auricomatis. Long. corp. 23 lin. ; lat. 7 lin. ♀ Long. corp. 28 lin. ; lat. 8½ lin.*

Fœmina differt antennis compresso-serratis et fuscis.

Hab. in insulâ Javæ.

The above insects, male and female, were brought to this country by Dr. Horsfield from the island of Java ; at first I was inclined to consider the species as the *mucronatus* of Olivier, but the figure in Voet is quite different. I have no hesitation in recording it as another species, and it may be remarked here that the above insects are in a good state of preservation, and that all the species of fiabellate Elaters with pubescence should be described immediately they are captured, as when dead they change considerably in colouring, often turning black and greasy, so that it is impossible accurately to describe them as in their original state.

LEPTOPHYLLUS STRACHANI. *Lept. (Mas) piceus, capite anticè excavato antennis, capite cum thorace ferè duplo longioribus, elytris acuminatis. Caput ferè quadratum, anticè excavatum rugosum, antennæ thorace duplo longiores, lamellis elongatis et ferrugineis. Thorax undique marginibus elevatis conspicuis, angulis anticis parùm productis, obtusis, posticis acutis et extùs divergentibus. Elytra valdè acuminata marginata picea et aurato-tomentosa. Corpus infrà concolor, femoribus tibiisque compressis. Fœmina adhuc latet. Long. corp. 26 lin. ; lat. 7 lin.*

The above species was brought to this country by Mr. Strachan, long time a resident at Sierra Leone. His zeal in urging his friends to collect insects in that climate has been the means of considerably enriching our metropolitan collections, and to him chiefly we are indebted for our acquaintance with the Goliath beetles. I have named

the insect above described in honour of this gentleman, who has exhibited such a remarkable zeal in favour of zoology. When his health declined in consequence of the bad climate, he yet made arrangements with his friends for enriching our collections at home. He returned to England, after resigning his laborious situation, broken in health but unsubdued in spirits, and hence we may hope that his health will shortly be re-established. The following characters appear to me sufficient to form into a subgenus, allied to *Oxynopterus*, the above insect which I have denominated *Leptophyllus*, from the long leaflets which compose the antennæ.

*Leptophyllus**, Hope.

Caput ferè quadratum, anticè emarginatum. *Antennæ* 11-articulatæ, 1^{mo} magno, 2^{do} subtrigono, octo sequentibus ferè æqualibus et lamellatis, undecimo triplo majori. *Thorax* angulis anticis rotundatis, posticis acutis, lateribus marginatis et carinatis. *Elytra* posticè acuminata, pedibus unguibus ferè æqualibus.

The anatomical sections of this genus are so fully figured by Mr. Westwood that there is no necessity for more ample details, as they may be detected on reference to the plate.

Pectocera†, Hope.

Caput fortiter emarginatum. *Antennæ* valdè pectinatæ, novem ultimis articulis, dentibus gradatim incrementibus, ultimis longissimis. *Thorax* anticè rotundatus, angulis posticis acutis. *Elytra* acuminata, pedibus simplicibus.

The remaining characters may easily be seen in the accompanying plate. It appears to me that the above genus is mediate between *Tetralobus* and *Ludius* and *Ctenicera*.

PECTOCERA CANTORI. *Pect. fusco-castanea, antennis valdè pectinatis brunneis. Thorax niger tomentoque aureo aspersus. Elytra fusco-castanea, apicibus acuminatis. Corpus infra pilosum, cinereis flavisque capillis obsitum. Segmenta abdominis utrinque brunneo-maculata, maculis glabris. Long. corp. 10 lin.; lat. 2½ lin.*

Hab. in agro Assamensi.

The above insect I received from Dr. Cantor before he quitted England, and I have since received it from the Khasyah Hills: it is named in honour of the above zealous naturalist.

PECTOCERA MELLII. *Flavo-fusca griscoque variegata, antennis pectinatis. Thorax angulis posticis acutis, subtomentosus. Elytra posticè valdè acuminata, pedibusque fusco-flavis et pubescentibus. Long. corp. 12½ lin.; lat. 3 lin.*

Hab. circa Semlaa in agris Thibetianis. E Musæo Dom. Melly descriptus.

* From λεπτός *tenuis*, and φύλλον *folium*.

† πεκτός or πηκτός *combed*, and κέρα *horn*, in short, comb-horned antennæ.

Mr. Gould exhibited a new species of Hawk, belonging to the genus *Elanus*, which he thus characterizes:—

ELANUS SCRIPTUS. *Elan. fronte et lined superoculari albis; capite et corpore subtilis saturate cinereis, rufescenti-fusco lavatis; tectricibus alarum fulgide nigerrimis; parte ala interiore nota lata nigra, per humerum et antibrachium educta, instar literæ V (aut potius VV, utriusque alæ paginâ interiore in conspectu,) impressâ.*

Forehead and line over the eye white; head and all the upper surface dark grey, washed with reddish brown; wing-coverts deep glossy black; primaries greyish brown, becoming nearly white on their webs, all but the first two or three margined with white at the tip; secondaries brownish grey on the outer web, white on the inner and at the extremity; tertiaries brownish grey; two centre tail-feathers grey; the remaining tail-feathers pale brown on their outer webs and white on the inner; lores black; all the under surface and edge of the shoulder white; on the under surface of the wing following the line of the bones a broad mark of black assuming the form of the letter V, or if both wings are seen at once, of a W; bill black; cere and legs yellow; claws black; irides orange.

Total length, $15\frac{3}{4}$ inches; bill, $1\frac{1}{4}$; wing, $12\frac{1}{4}$; tail, $7\frac{1}{4}$; tarsi, $1\frac{1}{2}$.

Hab. South Australia.

Mr. Gould next called attention to a collection of Birds from India, recently presented to the Society by Walter Ewer, Esq.

A paper by G. B. Sowerby, Esq., containing descriptions of new species of Shells belonging to the genus *Cyclostoma*, was then read.

The species described in this paper were collected in the Philippine Islands by H. Cuming, Esq., by whom they were exhibited.

CYCLOSTOMA ACUTIMARGINATUM.

Cycl. testâ suborbiculari, conicâ, tenui, lævi, subpellucidâ, badiâ, albido-marmoratâ, spirâ subacuminatâ, submammillari, anfractibus quatuor, raptim crescentibus, suprâ infrâque rotundatis, margine carinato, acuto, prope suturam marginemque coloribus articulatâ; aperturâ magnâ, orbiculari, peritremate reflexo, albo, incrassato, prope ultimum anfractum subinterrupto, supernè productiore, minimè reflexo; umbilico mediocri, profundo. Long. 0·9; lat. 1·1 poll. Operculo corneo, multispirali.

Hab. supra foliis Palmarum apud Catbalongan Insulæ Laman Philippinarum.

An elegant species, remarkable for the sharpness of its edge (in which it resembles a Carocolla), as well as for the beautiful arrangement of the colouring.

CYCLOSTOMA LUZONICUM.

Icon. Sowerby, Species Conchyliorum, Pars 2^{da}, Cyclostoma, f. 133.

Cycl. testâ suborbiculari, albidâ, castaneo-variegatâ, spirâ depressiusculâ, obtusâ; anfractibus quatuor ad quinque, rotundatis, concinnè

spiraliter striatis, fasciâ albidâ infrâ suturam fusco-articulatâ; suturâ profundâ; aperturâ circulari, peritremate crasso, reflexo; umbilico maximo. Long. 0.7; lat. 1.3 poll. Operculum corneum, tenue, anfractuum marginibus lamellosis.

The first specimens of this species were brought from Luçon by J. K. Smith, Esq. Mr. Cuming has collected the following varieties, viz:—

a. Shell variegated, with a brown and white articulated band close to the front of the suture, median band variously mottled. Found under decayed leaves on Mount Isarog in the province of South Camarinas, island of Luçon.

b. Shell variegated, upper or posterior part of the two last volutions with four or five rather prominent elevated striæ. Found under decayed leaves in the island of Masbate.

c. Upper part of the volutions of a pale colour, with a brown and white articulated band next to the suture; median line articulated with brown and white, in front of which the shell is dark brown, becoming paler toward the umbilicus. Found under decayed leaves at St. Jaun in the province of Cagayan, island of Luçon.

d. Shell dark chestnut-brown, articulated with white in front of the suture; median line brown and white mottled; umbilicus and peritreme white. Found under decayed wood at Calauang in the province of Laguna, island of Luçon.

e. Shell brownish, with an articulated band next to the suture, and two median bands, the posterior of which is white and the anterior dark brown; spire more elevated than in the former varieties. Found in earth under decayed leaves at Sinait in the province of South Ilocos, island of Luçon.

f. Shell rather smaller and with a more elevated spire than in varieties *a.* to *d.*, variously mottled. Found under decayed leaves in the woods at Dolores in the province of Pampanga, island of Luçon.

g. Shell rather paler coloured than most of the varieties, but having the inside of the aperture of an orange-brown. Found under decayed leaves on Mount Isarog, with var. *a.*

h. Similar to var. *e.*, but altogether paler, and from the same locality.

CYCLOSTOMA CANALIFERUM.

Icon. Sowerby, Species Conchyliorum, Pars 2^{da}, Cyclostoma, f. 195, 196.

Cycl. testâ orbiculari, subdepressâ, crassiusculâ, albicante, brunneo-marmoratâ, spirâ depressâ, obtusâ; anfractibus quatuor, rotundatis, spiraliter striatis et supernè cariniferis, prope suturam brunneo albidoque articulatis et cingulo centrali brunneo ornatis; suturâ canaliculatâ, margine canalâ elevato; aperturâ circulari, peritremate incrassato, reflexo, umbilicum patulum versus lamellosopatente. Long. 0.8; lat. 1.4 poll. Operculum corneum, anfractuum margine lamellari, levatiusculo.

This species bears a general resemblance to the last; it may be

distinguished by the flexuose lamella proceeding from the peritreme and overlying the umbilicus, so as nearly to cover it when adult; and also by the narrow channel at the suture. I received the first specimens of this shell from J. K. Smith, Esq. Mr. Cuming has collected two different varieties.

- a. Shell depressed, pale in colour, J. K. Smith, Esq.
- b. Shell with a more prominent spire and much darker colours. Found under decayed leaves on the island of Burias, H. Cuming, Esq.
- c. Shell with the spire prominent as the last; of a rich dark brown, with a white median line and angular flashes of white on the upper side. Found under decayed leaves in the province of Tayabas, island of Luçon, H. Cuming, Esq.

CYCLOSTOMA VALIDUM.

Cycl. testâ orbiculari, crassiusculâ, pallidâ, brunneo-variegatâ, spirâ elevatiusculâ, anfractibus quinque rotundatis, spiraliter striatis, et nonnunquam obtusè quatuor- ad quinque-carinatis; suturâ distinctâ; aperturâ circulari, peritremate incrassato, reflexo, umbilicum versus patente; umbilico mediocri. Long. 1.5; lat. 1.8 poll. Operculum corneum, tenuiculum, margine anfractuum lamellari.

The young shell of this species appears to have been of comparatively large size at its first development from the egg, the edge of its aperture being usually distinguished by a broad and dark brown oblique band at about the middle of the third volution from the apex. Mr. Cuming has brought several varieties, as follows:—

- a. This is the largest and coarsest variety, and its colours are the least brilliant; the lower part, near to the aperture, appears to be constantly worn away, probably from age; the peritreme also is extended far beyond its first formed edge. It is found on the leaves of trees at Tanauan, in the island of Leyte.
- b. Shell of a dark brown, with sometimes angular flashes of nearly white over the upper part of the shell; the median edge is obtusely keeled. It is found under decayed leaves in the province of Tayabas, island of Luçon.
- c. Shell of a light brown colour, variously mottled with very dark brown. Found under decayed leaves in dense woods at Catbalonga, and at Basay, in the island of Samar.
- d. Smaller than the last, and generally paler in colour, with less of the dark brown. Found under decayed leaves at Cagayan in the province of Misamis, Island of Mindanao.

CYCLOSTOMA STAINFORTHII.

Cycl. testâ tenui, albicante, pyramidalî, carinatâ; spirâ acuminatiusculâ, anfractibus quinque ad sex, lateribus subventricosâ, ultimo longè maximo, margine mediano carinato, lineis spiralibus fuscis quatuor ad sex ornato; suturâ subobsoletâ; aperturâ magnâ, sub-orbiculari, latere columellari rectiusculo; peritremate albo, subincrassato, reflexo, supra anfractum penultimum subinterrupto, um-

bilico mediocri. Long. 0·7; lat. 0·8 poll. *Operculum corneum, tenue, marginibus anfractuum lamellosis, levatiusculis*.

A very elegant species, which I have the pleasure of dedicating to my kind and liberal friend, the Rev. F. J. Stainforth. Mr. Cuming has brought the following varieties:—

a. Shell nearly white, variegated with brown mottlings and from four to six dark brown spiral lines. Found upon the leaves of trees on the island of Ticao.

b. Shell smaller, and altogether paler. Found on leaves of trees on the island of Masbate.

c. Shell of a pale rosy brown colour. On leaves of bushes on the island of Siquijor.

d. Shell of a pale colour, mottled with dark brown. On leaves of bushes in the island of Siquijor.

e. Shell nearly white. From the same locality as *c*. and *d*.

f. Shell larger than var. *e*. and nearly white. On leaves of trees in the island of Panay.

CYCLOSTOMA TUBA.

Cycl. testâ suborbiculari, depressiusculâ, tenui, lævi, albicante rufescente-fusco variegatâ et nubeculatâ; spirâ brevi, subdepressâ, acuminatâ, anfractibus quinque, planiusculis, primis carinatis, ultimo maximo, rotundato; aperturâ maximâ, circulari, expansâ, albicante; peritremate albicante, tenui, lato, revoluto, supra anfractum penultimum interrupto; umbilico magno. Alt. 1·5; lat. 2·3 poll.

Hab. sub foliis putridis prope Montem Ophir, Malaccæ.

This species is remarkable for the extent of the reflected lip of the aperture. Mr. Cuming has brought two varieties, differing only in size.

CYCLOSTOMA PHILIPPINARUM.

Sowerby, Species Conchyliorum, Pars 2^{da}, fig. 180 to 183.

Cycl. testâ globoso-conicâ, pallidâ, fusco-marmoratâ, spirâ subacuminatâ, anfractibus quinque subrotundatis, supernè longitudinaliter sulcatis, ultimo infrâ lævigato; aperturâ subrotundâ, peritremate obtuso, reflexo, supernè producto, latere umbilici subsinuato; umbilico parvo. Alt. 0·6; lat. 0·5 poll. *Operculum tenue, corneum, læve*.

Of this species, which is very variable in size and colouring, the first specimens I met with were brought from Manilla by J. K. Smith, Esq. Mr. Cuming has collected the following varieties, viz.

a. Shell small, light brown, elegantly marbled with dark chestnut-brown. Found in the earth at the roots of plants at Puerto-galero, in the island of Mindoro.

b. Shell rather larger than *a*, of a pale colour, with very slight dark brown mottlings; apex rosy. From Bai, in the isle of Negros.

c. Nearly similar to *b*, but the apex scarcely rosy. Found under decayed leaves at Piddig, in the province of North Ilocos, island of Luçon.

d. Shell larger, with a pale band round the circumference, and a dark one beneath. Found under decayed leaves at Sinit, and in earth at Bolinao.

e. Shell very darkly coloured, size of *d.* On leaves of bushes at Calauang, and on leaves of trees at St. Christoval, in the province of Batangas.

f. Shell smoother and paler than the other varieties; apex blackish. Found on leaves of bushes at Daleguete, island of Zebu.

g. Shell larger than the other varieties, dark brown, with a white and brown articulated band close to the suture, and a nearly white circumferential band. Found on leaves of bushes at the island of Luban.

CYCLOSTOMA ALTUM.

Cycl. testâ acuminato-turritâ, crassiusculâ, fuscâ, lævi, tenuissimè striatâ, apice obtusiusculo, anfractibus 7 ad 8 rotundatis; suturâ distinctâ, tenui; aperturâ circulari, labio subincrassato, reflexo-patente, duplici, margine externo magis, interno minus expanso, intus canali parvâ ad basin columellarem munito; umbilico medio-ocri extus carinâ obtusâ marginato; operculo corneo, tenui, multi-spirali. Long. 1; lat. 0.3 poll.

Hab. supra truncos arborum in montibus insulæ Negros, Philippinarum.

This species is remarkable for having a double lip, the inner or newer portion of which is not quite so much expanded as the outer. It may be regarded as the first link of affinity, connecting *Cyclostoma* with *Pupina* by the intervention of the next species, *C. Pupini-forme*.

CYCLOSTOMA PUPINIFORME.

Cycl. testâ subcylindrico-turritâ, crassiusculâ, obscurâ, fuscâ, lævi, tenuissimè striatâ, apice subabruptè acuminato, anfractibus senis, rotundatis, suturâ validâ; aperturâ circulari, peritremate discontinuo; labio externo subincrassato, revolutò, flavido, ad basin columellarem canali angustissimâ spirali interrupto; deindè superne latiori, demùm supra ultimum anfractum leviter expanso, canali angustâ tenuique inter anfractum ultimum et partem posticam labii positâ; umbilico parvo, carinâ obtusâ marginato, hæc carinâ externam partem canalis angustissimæ basis columellaris efformante. Long. 0.7; lat. 0.25.

Hab. supra truncos arborum apud S. Juan provinciæ Cagayan insulæ Luçon, Philippinarum.

This species, which is related to the last and to *Cycl. tortuosum* of Gray, approaches very nearly to the genus *Pupina*, appearing to differ only in having a dull unpolished external surface, while that of *Pupina* is extremely brilliant. It proves the genera *Cyclostoma* and *Pupina* to belong to the same family.

The next communication is from Dr. L. Pfeiffer, and contains the following descriptions of shells belonging to the genera *Helix* and *Bulimus*, also collected by H. Cuming, Esq. in the Philippine Islands.

HELIX ZONIFERA, SOW. *Hel. T. imperforatâ, subglobosâ, tenui, fulvâ, zonis variis opacis lutescenti-albidis ornatâ, obsolete angulatâ; anfractibus 4 convexis, supremis depressis; columellâ planâ, rectâ, elongatâ; aperturâ lunato-rotundatâ, intus nitidâ; peristomate simplici, expanso, albo, cum callo columellari angulatim juncto.*

Diam. 1.60; alt. 1.10 poll.

Hab. ins. Leyte.

β. *T. tenuissimâ, luteo-virente, basi unicolore, ad peripheriam fasciâ latâ nigricante et angustiore albidâ, supernè fasciis pluribus albidis interruptis ornatâ.*

Hab. ins. Leyte.

γ. *T. rufo-nigricante, fasciis variis sordidè albidis.*

Hab. ins. Samar.

δ. *T. crassiusculâ, cinnamomeâ, fasciis lutescenti-albidis.*

Hab. ins. Samar.

Differt ab *H. pulcherrimâ*, cui valdè affinis, spirâ depressâ, anfractu ultimo minus inflato, et columellâ neque excavatâ neque dentatâ.

HELIX NORRISII, SOW. *Hel. T. imperforatâ, globoso-depressâ, solidâ, glabrâ, fulvo-citrinâ, zonis opacis candidis et infra suturam maculis irregularibus albis notatâ; spirâ semiglobosâ; anfractibus $4\frac{1}{2}$ convexis, ultimo ad columellam subexcavato; columellâ latâ, albo-callosâ, arcuatim prolongatâ; aperturâ ferè orbiculari, intus lacteâ; peristomate crasso, latissimè expanso.*

Diam. 1.80; alt. 1.15 poll.

Hab. insula Luçon, ad Montem Triga.

Species intermedia inter *H. pulcherrimam* et *zoniferam*, ab illâ spirâ depressâ et columellâ arcuatâ, ab alterâ columellâ excavatâ, nec angulatâ diversa.

HELIX LUZONICA, SOW. *Hel. T. imperforatâ, conico-globosâ, crassiusculâ, obliquè striatâ, rufâ, apice sanguinâ, epidermide liberâ ferè omnino tectâ, medio fasciâ latâ albidâ ornato; spirâ conoideâ; anfractibus 5 — $5\frac{1}{2}$ convexiusculis; columellâ obliquâ, dilatâ, tuberculosâ; aperturâ lunato-orbiculari, intus lacteâ; peristomate incrassato, latè reflexo, albo vel purpureo latè limbato.*

Diam. 1.60; lat. 1.15 poll.

Hab. Provincia Cagayan insulæ Luçon.

Differt ab *H. pulcherrimâ* testâ crassâ, conoideâ, anfractibus pluribus et sensim accrescentibus, columellâ vix excavatâ et labro incrassato.

HELIX MINDANAENSIS, SOW. *Hel. T. imperforatâ, globoso-conicâ, solidâ, obliquè rugoso-striatâ, apice obtuso, pallidâ, luteo-fuscâ, opacâ, maculis variis rufis pellucidis ornatâ; spirâ conoideâ; anfractibus $4\frac{1}{2}$ convexiusculis, ultimo medio obtusè angulato, infra angulum fasciâ latâ, hydrophanâ, albidâ signato; columellâ lividâ, subrectè descendente, medio subintortâ; aperturâ tetragono-ovatâ, intus plumbeâ; peristomate subincrassato, parùm reflexo, livido-fusco, margine supero arcuatim dilatato.*

Diam. 2.20; alt. 1.65 poll.

Hab. insula Mindanao.

Forma et magnitudo sicut *H. Pan.* Differt anfractu ultimo angulato, colore et formâ columellæ et aperturæ. Ab *H. Harfordii* differt formâ conicâ, maculis non hydrophanis, sed in ipsâ testâ positis, et margine dextro aperturæ sinuato.

HELIX CARBONARIA, Sow. *Hel. T. imperforatâ, subtrochiformi, levi, purpureo-nigricante, epidermide fuscâ, hydrophanâ, obliquè strigatâ, apice rubrâ vel violaceâ; suturâ lineari; anfractibus 5 planiusculis, ultimo carinato, basi plano; columellâ subrectâ, dilatatâ, fusciculâ; aperturâ subtetragonâ, intûs lividâ; peristomate simplici, vix incrassato.*

Diam. 1.20; altit. 0.95 poll.

Hab. Insula Zebu. 'Daleguete.'

Variat carinâ obtusiore, basi convexiore.

HELIX (CAROCOLLA) PANAYENSIS, Brod. *Hel. T. imperforatâ, depressâ, orbiculari, carinatâ, crassiusculâ, supernè griseo-fuscâ, minutissimè granulatâ, basi radiatim striatâ, nitidissimâ, olivaceâ; spirâ depresso-conoidâ; anfractibus 6 planulatis, ultimo non deflexo; aperturâ angulato-lunari, intûs albidâ; peristomate supernè simplici, basi incrassato, ad columellam expansiusculo.*

Diam. 1.60; altit. 0.85 poll.

Hab. Insula Panay. 'Dingle.'

Var. (Cagayan ins. Luçon). *Spirâ elatiore, anfractibus ultimis tumidis, supernè saturatè rufâ, basi nigricans, deorsum pallescens.*

HELIX MORICANDI, Sow. *Hel. T. umbilicatâ, semiglobosâ, basi planiusculâ, nitidâ, albido-flavâ, fasciis rufis 2-3-cinctâ; anfractibus 5½ convexis, ultimo margine dextro subitò deflexo; umbilico angusto, pervio; aperturâ transversè pyriformi, basi parallelâ; peristomate connexo, margine superiore expanso, basali latè reflexo, ad basin dente unico crasso instructo.*

Diam. 1.35; altit. 0.70 poll.

Hab. Insula Bohol. 'Jacna.'

Differt ab *H. zonali*, Fér., cui persimilis, basi planâ, aperturæ parte supremâ deflexâ, indè horizontali, et marginibus peristomatis junctis.

HELIX SAGITTIFERA, Pfr. an Nanina? *Hel. T. subperforatâ, tenui, pellucidâ, obliquè striatâ et obsoletè rugosâ, fulvâ, maculis seriatis sagittiformibus et ad carinam obsoletam fasciâ unicâ rufâ ornatâ; suturâ impressâ, ad anfractum ultimum subcanaliculatâ; anfractibus 4½ planiusculis, ultimo inflato; aperturâ perobliquâ, lunato-ovatâ, intûs lacteâ; peristomate simplici, ad columellam subincrassato, vix reflexo, margine superiore deflexo.*

Diam. 2; altit. 1.10 poll.

Hab. Sinait insulæ Luçon.

Affinis *H. Lamarckianæ*, Lea. Differt formâ minus depressâ, anfractibus spiræ lentè crescentibus, ultimo vix carinato, et colore.

Varietas: testâ distinctè carinatâ, supernè intensè rufâ, infra

carinam fasciâ nigricante dilutâ circumdatâ, basi olivaceo-fulvâ, maculis sagittiformibus obsoletis.—Bolinao insulæ Luçon.

HELIX FULVIDA, Pfr. an Nanina? *Hel. T. subperforatâ, subglobosâ, tenui, pellucidâ, pallidè fulvescente, supernè confertissimè et minutissimè granulosâ, basi glabrâ, nitidâ; spirâ elatâ; anfractibus 5½, supremis planis, 1½ ultimis rotundatis; aperturâ lunari; peristomate simplici, margine columellari subincrassato, ad perforationem obsoletam reflexo.*

Diam. 1·25; altit. 0·85 poll.

Hab. Insula Mindanao.

HELIX JANUS, Chemn. xi. 3016. 17.—*Helicella*, Fér. pr. 233.—An Nanina? *Hel. T. sinistrorsâ, perforatâ, orbiculari, tenui, diaphanâ, obliquè regulariter et confertim striatâ, supernè fuscâ, basi convexâ, rufâ, nitidiusculâ; spirâ latè depresso-conoideâ; anfractibus 7 planulatis, ultimo carinato; aperturâ lunari; peristomate tenui, acuto, margine columellari reflexiusculo.*

Diam. 1·30; altit. 0·80 poll.

Hab. in monte Ophir, peninsulæ Malaccanæ.

H. Mackensiana, Saul in Revue Zool. 1841, p. 347, eadem esse videtur.

HELIX PORPHYRIA, Pfr. an Nanina? *Hel. T. perforatâ, depressâ, solidâ, obliquè rugoso-striatâ, rufâ, maculis et strigis creberrimis, flavido-albidis subprominulis marmoratâ, carinatâ, infra carinam rufo-fasciatâ, basi olivaceo-fulvâ, nitidiore; anfractibus 4½ planulatis, regulariter crescentibus, ultimo circa perforationem apertam excavato; aperturâ subrhombæd; peristomate simplici, tenui, margine columellari arcuatim reflexo.*

Diam. 1·80; altit. 1·00 poll.

Hab. Insula Burias.

HELIX SAMARENSIS, Pfr. *Hel. T. umbilicatâ, depresso-conoideâ, tenui, obliquè striatulâ, fulvido-albâ, fasciis rufis ornatâ; basi planulatâ; suturâ lineari; anfractibus 4½ planiusculis, ultimo basi subcarinato; umbilico angusto, pervio; aperturâ horizontali, ellipticâ; peristomate simplici, margine supero expanso, basali latè reflexo, edentulo.*

Diam. 0·90; altit. 0·50 poll.

Hab. Insula Samar.

HELIX BUTLERI, Pfr. *Hel. T. imperforatâ, globosâ, tenui, lævi, apice obtuso albâ; spirâ semiglobosâ; suturâ mediocri; anfractibus 4½ planiusculis, ultimo inflato, pallidè lutescente, lineis parvis confertis, crispulis vel interruptis ornatâ; columellâ subrectâ, latâ, profundè intrante; aperturâ rotundato-lunatâ; peristomate simplici, vix expanso.*

Diam. 1·25; altit. 1·00 poll.

Hab. Mountains of the Igorrotes.—Forma affinis *H. versicolori* Bornii.

HELIX BECKIANA, Pfr. *Hel. T. umbilicatâ, orbiculari, tenui, obliquè*

striatâ, fuscâ, vix nitidulâ; spirâ parùm elatâ; suturâ lineari; anfractibus 6 planiusculis, ultimo deflexo, ad peripheriam angulato; angulo ad aperturam obsoleto; basi planiusculâ; umbilico mediocri, pervio; aperturâ ferè horizontali, subtrapezoidali; peristomate simplici, margine columellari brevi, basali reflexo, quasi in tuberculum incrassato.

Diam. 0·85; altit. 0·40 poll.—Nueva Ecija.

HELIX CUMINGII, Pfr. *Hel. T. imperforatâ, depressâ, obtusè subcarinatâ, apice violaceo, obtusâ, obliquè striatâ, nigricanti-rufâ, epidermide rufâ, supernè maculis irregularibus, basi fasciis multis stramineo-cinereis ornatâ; anfractibus 4, supremis planiusculis, ultimo subinflato; columellâ rectè descendente, latè callosâ; aperturâ latâ, subquadrangulâ; peristomate latè expanso, margine inferiore incrassato.*

Diam. 1·60; altit. 0·90 poll.

Hab. Insula Zebu.—Affinis *H. Zebuensi*, Brod.

HELIX SCROBICULATA, Pfr. *Hel. T. umbilicatâ, lenticulari, tenui, obliquè rugosâ, fulvido-albidâ, fusco-zonatâ, carinatâ; spirâ parùm elatâ, apice obtuso nitidâ, glabrâ; suturâ lineari; anfractibus 4½ convexiusculis, ultimo deflexo; carinâ subacutâ; umbilico angusto, pervio; aperturâ transversè pyriformi; peristomate simplici, continuo, supernè expanso, basi latè reflexo, unidentato; dente obtuso, extûs scrobiculum formante.*

Diam. 1·15; altit. 0·45 poll.

Hab. Insula Bohol.

Affinis *H. rotæ*, spirâ elatiore, carinâ simplici, subacutâ, et costis deficientibus diversâ.

BULIMUS BREVICULUS, Pfr. *Bul. T. imperforatâ, ovatâ, apice obtuso, obliquè obsoletè striatâ, nitidâ, albâ, epidermide lutescente deciduâ obductâ; anfractibus 6 angustis, convexiusculis; columellâ subrectâ, in laminam tenuem expansâ; aperturâ perobliquâ, transversè semiovali; peristomate simplici, expanso.*

Long. 1·15; diam. 0·75 poll.

Hab. Insula Romblon.

Affinis *Bulimo stabili*, Sow., formâ abbreviatâ, anfractibus convexiusculis et aperturâ diversis.

BULIMUS CUMINGII, Pfr. *Bul. T. imperforatâ, ovatâ, tenuissimâ, obliquè striatâ, pellucidâ, albido-virente, ad suturam lineâ rufâ circumdatâ; anfractibus 4½ convexiusculis, ultimo obsoletè angulato, spiram paulò superante; columellâ planâ, subexcavatâ, fuscâ; aperturâ lunato-ovali; peristomate simplici, margine dextro latè expanso, basali subreflexo.*

Long. 1·35; diam. 0·95 poll.

Hab. Insula Camiguin.

BULIMUS LIGNARIUS, Pfr. *Bul. T. imperforatâ, conoideo-globosâ, solidâ, obliquè striatâ, subepidermide lignariâ nitidè nigricante, sursum pallescente, apice obtusiusculo, nitide fulvo; spirâ conoideâ;*

anfractibus 5 convexis, ultimo spirá paulò breviorē; columellá subrectá, extrorsum latè expansá, fusco-plumbeá; aperturá lunato-ovalí, intùs nitidè cærulescente; peristomate simplici, reflexo, saturatè plumbeo, margine dextro valdè arcuato.

Long. 3·05; diam. 2·20 poll.

Hab. Provincia Cagayan insulæ Luçon.

α. *Ferè unicolor, epidermide pallidá, saturatius strigatá, fasciá unicá angustá, nigrá suprâ, latiore albidâ infrâ medium anfractus ultimi.*

β. *Epidermide albo-strigatá, fasciis pluribus angustis nigricanti-rufis, unicá latiore albidâ infrâ medium anfractus ultimi.*

γ. *Minor, spira subelongata; color sicut in α.*

BULIMUS JUGLANS, Pfr. *Bul. T. imperforatá, elongato-globosá, apice obtuso, solidiusculá, obliquè distinctè striatá, unicolore, rufá; anfractibus 5 convexis, ultimo spiram æquante; columellá latá, albá, introrsum arcuatim prominente; aperturá magná, irregulariter subovalí, ad basin columellæ sinuatá, intùs pallidè lividá; peristomate vix reflexo, rufo-marginato.*

Long. 2·20; diam. 1·50 poll.

Hab. 'Mountains of Igorrotes.'

BULIMUS NYMPHA, Pfr. (*Achatina* ?) *Bul. T. ovato-turritá, solidiusculá, lævi, sulphureá, epidermide hydrophaná, lignéa crebrè et latè strigatá, lineá suturali rufá et areá columellari nigricante ornatá; apice obtuso, nitide roseo; anfractibus 6 vix convexiusculis, ultimo $\frac{1}{2}$ longitudinis æquante, obsoletè angulato; columellá rectá, planá, vix truncatulá; aperturá magná, ovali, intùs albá; peristomate subsimplici, albo, margine dextro valdè arcuato.*

Long. 2·00; diam. 0·95 poll.

Hab. Insula Luçon, 'San Miguel.'

Var. *Testá rufá, sursum pallescente, apice roseo; epidermide albidâ, peristomate rufo. Mt. Triga.*

Differt a *Bulimo* (*Achatina*) *Boholensi* formâ ventricosiore, anfractu ultimo brevi, aperturá latá, peristomate non expanso.

July 12, 1842.

William Horton Lloyd, Esq., in the Chair.

The following "Descriptions of two new species of *Oniscia*, a genus of pectinibranchiate Mollusks," communicated by Mr. Lovell Reeve, was read.

ONISCIA DENNISONI. *Onisc. testá trigono-ovatá, decussatim costatá, costis tuberculo squamæve ad juncturas instructis; anfractibus supernè angulatis, superficie albá, fusco-maculosá, leviter striatá; labro columellari rutilo, albo-granuloso, latissimè effuso; labro externo valdè incrassato, internè denticulis albis irregulariter ornato.*

Reeve, Conch. Syst., vol. ii. pl. 253. f. 5 and 6.

Hab. ———?

Long. 2; lat. $1\frac{1}{10}$ poll.

In dedicating this very chaste and beautiful shell to its fortunate possessor, J. Dennison, Esq., we memorize the name of a gentleman whose collection is perhaps unequalled in excellency and preservation. The very rare and valuable specimen before us is closely allied to the *Oniscia cancellata* (*Cassidaria cancellata*, Lamarek), so much so indeed that we at first hesitated to consider it a distinct species; the rich and rosy appearance of the columellar lip is, however, remarkable, and as this part of the shell exhibits its chief generic character, may not so decided a variation of it be considered of specific importance?

ONISCIA STROMBIFORMIS. *Onisc. testá trigono-pyriformi, albá, transversim irregulariter costatá et nodosá; anfractibus supernè angulatis, angulis valdè nodosis; labro columellari albo, granuloso, leviter effuso; labro externo denticulato.*

Reeve, Conch. Syst., vol. ii. pl. 253. f. 1.

Hab. ———? Mus. Cuming.

Long. $\frac{7}{8}$; lat. $\frac{1}{2}$ poll.

An interesting small species, figured in 'Conch. Syst.' together with the former, and which appears to be very distinct from any hitherto described.

A collection of skins, procured by the Honourable Charles Murray during his travels in North America, and presented to the Society by that gentleman, were exhibited. Among these was a curious yellow variety of the Grisly Bear,—*Ursus ferox*, Lewis and Clark.

A series of birds' skins, being the remaining portion of the collection presented by Walter Ewer, Esq., part of which was exhibited at the previous meeting, was laid on the table. These birds were collected in the north-western province of the Bengal presidency, in

north latitude 29° to 31°, and east longitude 77° to 80°, and are chiefly inhabitants of the plain. Mr. Ewer, however, observes, that there are perhaps also a few from the Himalaya mountains in the collection.

The following is a list of the species :—

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| <i>Neophron percnopterus</i> , Temm. | <i>Phenicura rutililla</i> , Sw. |
| <i>Haliaeetus Macei</i> . | <i>Motacilla alba</i> . |
| — <i>Ponticerianus</i> . | <i>Prinia inornata</i> , Sykes. |
| <i>Circaetus brachydactylus</i> , Vieill. | <i>Timalia hypoleuca</i> , Frankl. |
| <i>Aquila Vindhiana</i> , Frankl. | <i>Parus atriceps</i> , Horsf. |
| <i>Morphnus cristatellus</i> . | <i>Emberiza cristata</i> , Vig. |
| <i>Astur Hyder</i> , Sykes. | <i>Pyrgita domestica</i> , Cuv. |
| <i>Accipiter nisus</i> . | <i>Fringilla leuconota</i> , Temm. |
| <i>Falco Chicquera</i> , Lath. | <i>Ploceus Philippinus</i> , Cuv. |
| <i>Circus rufus</i> , Briss. | <i>Sturnus vulgaris</i> , Linn. |
| — <i>pallidus</i> , Sykes. | <i>Pastor Galla</i> . |
| <i>Elanus melanopterus</i> , Leach. | <i>Lamprotornis spilopterus</i> , Vig. |
| <i>Milvus Cheele</i> . | <i>Dendrocitta Sinensis</i> , Vig. |
| <i>Ketupa Leschenaulti</i> , Less. | — <i>vagabunda</i> , Vig. |
| <i>Merops Philippinus</i> , Linn. | <i>Garrulus bispecularis</i> , Vig. |
| — <i>viridis</i> , Linn. | — <i>lanceolatus</i> , Vig. |
| <i>Hirundo filifera</i> , Steph. | — <i>striatus</i> , Vig. |
| — <i>riparia</i> ? Linn. | <i>Pica erythrorhyncha</i> , Vig. |
| <i>Halcyon Smyrnensis</i> , Linn. | <i>Nucifraga hemispila</i> , Vig. |
| <i>Alcedo rudis</i> , Linn. | <i>Fregilus Graculus</i> , Cuv. |
| — <i>Bengalensis</i> . | <i>Corvus culminatus</i> , Sykes. |
| — <i>Graucalus Papuensis</i> , Cuv. | <i>Eudynamys orientalis</i> , V. & H. |
| <i>Collurio erythronotus</i> , Vig. | <i>Centropus Philippensis</i> , Cuv. |
| — <i>Lahtora</i> , Sykes. | — <i>Cirkeer</i> , Gray. |
| <i>Phanicornis peregrina</i> , Vig. | <i>Palæornis torquatus</i> , Vig. |
| — <i>brevirostris</i> , Vig. | — <i>flavicollaris</i> , Frankl. |
| — <i>rubeculoides</i> , Vig. | <i>Picus occipitalis</i> , Vig. |
| <i>Turdus albicollis</i> . | — <i>Mahrattensis</i> , Lath. |
| — <i>pæcilopterus</i> , Vig. | <i>Bucco caniceps</i> , Frankl. |
| — <i>saularis</i> , Auct. | — <i>Philippinensis</i> , Auct. |
| — ? | <i>Yunx Torquilla</i> , Linn. |
| <i>Oriolus Galbula</i> . | <i>Sitta castaneoventris</i> , Frankl. |
| <i>Malacocercus striatus</i> , Sw. | <i>Pomatorhinus erythrogeus</i> , Vig. |
| <i>Hypsipetes psaroides</i> , Vig. | <i>Phasianus albocristatus</i> , Vig. |
| <i>Ixos cafer</i> . | <i>Perdix Chukar</i> , Vig. |
| — <i>leucotis</i> , Gould. | <i>Francolinus Pondicerianus</i> . |
| <i>Ianthocincla albogularis</i> , Gould. | — <i>vulgaris</i> . |
| — <i>leucocephala</i> , Gould. | <i>Coturnix Cambaiensis</i> . |
| — <i>erythrocephala</i> , Gould. | <i>Pterocles exustus</i> . |
| <i>Euicurus maculatus</i> , Vig. | <i>Cursorius Coromandelicus</i> . |
| <i>Myophonus Temmincki</i> , Vig. | <i>Edicnemus crepitans</i> , Temm. |
| <i>Megalurus palustris</i> , Sykes? | <i>Vanellus Goensis</i> , Auct. |
| <i>Anthus Chendoola</i> , Frankl. | — <i>cristatus</i> , Meyer. |
| <i>Pyrrhulauda cruciger</i> . | — <i>Keptuschka</i> , Temm. |
| <i>Saxicola bicolor</i> , Sykes. | <i>Gallinago stenurus</i> . |

Tringa pugnax, Linn.
 — *Temmincki*, Leisler.
Totanus glottoides, Vig.
Herodias Gazetta.
Botaurus stellaris, Steph.
Anas pæcilorhyncha, Gmel.
Dafila acuta, Leach.
Mareca Penelope, Selby.
Fuligula rufina, Steph.
 — *cristata*, Steph.
Nyroca leucophthalma, Flem.
Rhynchaspis clypeata, Steph.

Chauliodes strepera, Sw.
Querquedula Crecca.
Tadorna rutila, Steph.
Anser Indicus, Steph.
Mergus albellus, Linn.
 — *merganser*, Linn.
Podiceps minor, Lath.
Sterna aurantia, Gray.
Plotus Levaillanti, Temm.
Phalacrocorax Javanica.
 — *Cormoranus*, Temm.

An abstract of a letter from E. Blyth, Esq., curator to the museum at Calcutta, was then read. It contains the following list of birds, with observations upon them, which are found both in India and Europe :—

Aquila chrysaetos, Vig. Inhabits the mountains.
Falco peregrinus, Gmel. Inhabits the mountains.
 — *naumulus*, Linn. Common.
Peris apivorus, Auct. Moderately common.
Circus rufus, Auct. Moderately common.
 — *cyræus*, Auct. Moderately common.
 — *cinnereus*, Auct. Moderately common.
Otus brachyotus, Flem. Not rare.
Strix flammea, Linn. Common.
Hirundo rustica, Linn. Found in the Himalayas.
 — *riparia*, Linn. Inhabits the Himalayas.
Saxicola Rubetra, Temm. Not uncommon.
 — *rubicola*, Temm. Not uncommon.
Sylvia Hippolais, Lath. Not uncommon.
 — *Suecica*, Lath. Not uncommon.
Turdus viscivorus, Linn. Inhabits the Himalayas.
Pyrgita domestica, Auct. Very common.
 — *montana*, Auct. Inhabits the Himalayas; is found also at Chusan on the east, and Affghanistan on the west, in both places representing the house-sparrow.
Corvus pica, Linn. Is found, according to report, in Affghanistan. I have seen the true British species from Chusan. There is a distinct but nearly allied species at Bootan, which may also be that of Affghanistan.
Corvus Corax, Linn. Inhabits the mountains, but not the plains; it is there replaced by a smaller species*, often mistaken for the common raven.
Fregilus Graculus, Selby. Abounds in the Himalayas.
Sturnus vulgaris, Linn. Is seen commonly in the bird-shops at Calcutta, being brought from the hills.

* Mr. Blyth probably alludes to the species to which Col. Sykes gave the name *culminatus*.

Cuculus canorus, Linn. Rare ; but the nearly allied species, *Cuculus micropterus* of Gould, is less so.

Yunx Torquilla, Linn. Not rare.

Charadrius minor, Meyer. Very common.

Edicnemus crepitans, Temm. Inhabits the peninsula of India.

Ardea. All the European species of Heron are to be met with.

Botaurus stellaris, Linn.

Ciconia alba, Ray. Rare.

— *nigra*, Ray. Rare.

Platalea Leucorodia, Linn. Very common.

Ibis Falcinellus, Temm. Very common.

Numenius arquata, Lath. Common ; but the *Numenius phaeopus* (Lath.) is not found here.

Totanus fuscus, Leisl. Common.

— *calidris*, Bechst. Common.

— *ochropus*, Temm. Not very common.

— *glareola*, Temm. Excessively abundant.

— *hypoleucos*, Temm. Not very common.

Recurvirostra Avocetta, Linn. Not very common.

Himantopus melanopterus, Temm. Very common.

Limosa melanura, Leisl. Very common ; but the *Limosa rufa* (Briss.) is not found here.

Scolopax Rusticola, Linn. Abounds in the hills.

— *Gallinago*, Linn. Not rare.

— *Gallinula*, Linn. Not rare.

Tringa pugnax, Linn. Common.

— *subarquata*, Temm. Tolerably common.

— *Temmincki*, Leisl. Very common.

— *minuta*, Leisl. Very common.

Phalaropus platyrhynchus, Temm. Rare.

Tadorna rutila, Steph. Common.

— *Bellonii*, Steph. Very rare.

Anas clypeata, Linn. Moderately common.

Chauliodus Strepera, Swains. Moderately common.

Dafila acuta, Linn. Common.

Querquedula circea. Very common.

— *Crecca*. Very common.

Mareca Penelope, Selb. Not common.

Fuligula rufina, Steph. Very common.

— *Nyroca*, Steph. Very common.

— *cristata*, Steph. Not common.

— *ferina*, Steph. Not common.

July 26, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

The following memoirs were read :—

“Observations on the Semen and Seminal Tubes of Mammalia and Birds,” by George Gulliver, F.R.S.

It has long been known that the testicles of Birds become much enlarged in the spring, and that the same organs of Mammalia are more or less increased in size at the rutting-season, and in young animals generally as they become capable of reproduction. Professor R. Wagner (*‘Physiology,’* translated by Willis, pp. 23 and 27) has noticed also the enlargement of the seminal tubes of all these animals at the periods above named; but as I am not aware that we possess any observations on this head sufficiently numerous and precise to be useful for reference and comparison, I am induced to submit to the Society a contribution towards this object, particularly as it appears to me that the condition of the semen and testicles at different periods is an interesting inquiry in relation to the habits and economy of animals.

During winter the coats of the seminal tubes of Birds are tolerably strong and thick. The increased size of the tubes at the season of procreation arises from the accumulation of semen within them, by which their coats are so much distended and attenuated that they are most easily ruptured, and are much thinner than the corresponding parts of Mammalia are at any time.

In the following table the measurements are all expressed in vulgar fractions of an English inch*, and where only one fraction is given it denotes the average size. With the exceptions dated November and December, the animals were all examined during the present year, and, unless noted to the contrary, they were adults. In Birds the left testicle, which is commonly somewhat larger than the right, was generally the subject of observation.

Table of Measurements of the Seminal Tubes, and of remarks on the state of the Semen and Testicles at different seasons.

Date.	Name of Animal.	Size of Tubes.	State of Testes, &c.
Feb. 4.	Man, æt. 22	1-142 to 1-77	Scarcely any fluid in testes. Died of pulmonary consumption.
Nov. 9.	Ditto, æt. 56	1-150 to 1-73	Died of chronic pericarditis. No spermatozoa.

* I take this opportunity of remarking, that all my microscopic measurements have been invariably given in vulgar fractions of an English inch, however they may have been set up in type for the sake of convenience.

Table (continued).

Date.	Name of Animal.	Size of Tubes.	State of Testes, &c.
Nov. 11.	Man, æt. 53	1-150 to 1-80	Died of pericarditis, enlarged heart, and old pleuro-pneumonia. A few spermatozoa in epididymis.
Dec. 7.	Ditto, æt. 42	1-133 to 1-86	Died of phthisis. Some spermatozoa in epididymis.
Nov. 14.	Ditto, æt. 73	1-133 to 1-73	Died of phthisis. Tubes filled with dark, round, and very minute particles; these chiefly aggregated together in irregular masses, and occasionally in the form of round or oval corpuscles with delicate cysts. No spermatozoa.
Nov. 17.	Ditto, æt. 60	1-146 to 1-82	Died of phthisis. Seminal tubes in the same condition as the preceding.
Dec. 10.	Ditto, æt. 86	1-160 to 1-100	Died of pneumonia. Had fatty matter in liver, lungs, and testes; no spermatozoa; tubes in the same condition as in the two preceding.
Aug. 25.	Child, æt. 8	1-422	Died of pulmonary consumption.
Dec. 1.	Child, æt. 18 months	1-400 to 1-266	Child puny and emaciated. Died of pneumonia.
July 15.	Child, æt. 4 months	1-308	Died of tubercles of mesenteric glands.
Oct. 25.	Child, æt. 6 weeks	1-333 to 1-230	Body much emaciated. Died of pneumonia.
Aug. 25.	Child, still-born	1-307	Well-nourished fœtus; born at the full period of utero-gestation.
Oct. 14.	Ditto	1-363 to 1-210	Fœtus weighed 7 lbs.
Oct. 23.	Ditto	1-300 to 1-222	Fœtus weighed 6 lbs.
Nov. 5.	Ditto	1-400 to 1-266	Weight of fœtus 5½ lbs.
June 15.	<i>Vespertilio Pipistrellus</i> , <i>Geoff.</i> ..	1-200 to 1-171	Seminal matter containing abundance of molecules, but no spermatozoa.
June 15.	<i>Erinaceus Europæus</i> , <i>Linn.</i> ...	1-109 to 1-75	No animalcules. Died of disease.
April 30.	<i>Sorex tetragonurus</i> , <i>Herm.</i>	1-109 to 1-85	Semen and spermatozoa very abundant. Many male shrews found dead, with marks of injuries, apparently from fighting; and in

Table (continued).

Date.	Name of Animal.	Size of Tubes.	State of Testes, &c.
July 16.	<i>Canis familiaris</i> , <i>Linn.</i>	1-125 to 1-85	all these the testes were very turgid. A mongrel. Spermatozoa abundant.
Feb. 15.	Ditto; a still-born puppy	1-250	
Dec. 30.	<i>Felis Leo</i> , <i>Linn.</i> (3 years old) ...	1-200 to 1-150	Died of disease of the brain. Molecules abundant, and a few cells containing spermatozoa.
Nov. 6.	<i>Felis domestica</i> , <i>Briss.</i> (nine months old)	1-141 to 1-85	Spermatozoa plentiful.
Oct. 4.	<i>Arctonyx collaris</i> , <i>F. Cuv.</i>	1-100 to 1-60	Tubes large. Spermatozoa rather plentiful. Some cells and numerous molecules. Died in confinement.
Oct. 15.	<i>Ursus Americanus</i> , <i>Pall.</i>	1-200 to 1-125	No spermatozoa. Seminal tubes full of dark-coloured pulp, in which were only visible some altered epithelial cells and numerous oily globules. Died in confinement.
Jan. 6.	<i>Mustela vulgaris</i> , <i>Linn.</i>	1-171 to 1-109	Molecules plentiful in semen; no spermatozoa.
May 20.	<i>Mustela erminea</i> , <i>Linn.</i>	1-120 to 1-80	Spermatozoa plentiful; scarcely any molecules.
April 30.	<i>Cervus Wapiti</i> , <i>Mitch.</i>	1-160 to 1-106	Many perfect spermatozoa; molecules scanty; animal 24 months old. Died of diseased kidneys.
Jan. 12.	<i>Cervus Elaphus</i> , <i>Linn.</i>	1-117 to 1-105	Perfect spermatozoa very abundant; many in different stages of development.
Jan. 12.	<i>Cervus Dama</i> , <i>Linn.</i>	1-160 to 1-100	Perfect spermatozoa very numerous; many in cells.
April 6.	Ditto	1-160 to 1-100	Spermatozoa abundant; none in cells.
Jan. 26.	Ditto, fœtus 6 inches long	1-666 to 1-363	Tubes full of corpuscles about 1-2800th of an inch in diameter; no molecules.
March 26.	Ditto, 14 inches long	1-333 to 1-285	Ditto.
June 22.	<i>Antelope picta</i> , <i>Pall.</i>	1-120 to 1-80	Semen and spermatozoa abundant.
Dec. 31.	Ditto (died a few hours after birth)	1-571 to 1-363	Contents of tubes as in other immature animals.
May 25.	<i>Capra Hircus</i> , <i>Linn.</i> (12 weeks old)	1-236 to 1-171	Semen containing abundance of molecules and rudimentary spermatozoa in cells.

Table (continued).

Date.	Name of Animal.	Size of Tubes.	State of Testes, &c.
Feb. 24.	<i>Ovis Aries</i> , <i>Linn.</i> (just born) ...	1-571	Tubes very small.
Nov. 2.	<i>Camelus Dromedarius</i> , <i>Linn.</i> ...	1-120 to 1-75	Died of dropsy. Spermatozoa plentiful; some rudimentary in cells, with corpuscles; molecules scanty.
Dec. 10.	<i>Sciurus vulgaris</i> , <i>Linn.</i>	1-120 to 1-60	A few spermatozoa.
Nov. 29.	<i>Lepus cuniculus</i> , <i>Linn.</i>	1-150 to 1-92	But few spermatozoa.
Jan. 18.	<i>Mus decumanus</i> , <i>Linn.</i>	1-46 to 1-42	Spermatozoa very abundant; tubes large.
Jan. 18.	Ditto, two-thirds grown	1-120 to 1-109	No spermatozoa.
Jan. 18.	Ditto ditto	1-153 to 1-120	Ditto.
Nov. 3.	<i>Mus musculus</i> , <i>Linn.</i>	1-80 to 1-66	Spermatozoa abundant.
Nov. 11.	Ditto, three-fourths grown	1-120 to 1-86	A few free spermatozoa; a great number immature in cells; molecules pretty abundant.
Feb. 17.	Ditto (blind sucking young one).	1-400 to 1-222	
May 5.	<i>Strix flammea</i> , <i>Linn.</i>	1-230 to 1-133	Died in confinement. Testis one-third of an inch long and one tenth broad.
March 16.	<i>Corvus frugilegus</i> , <i>Linn.</i>	1-75 to 1-46	Testis one inch long and three-fourths broad; semen and animalcules very abundant; no molecules.
Feb. 25.	<i>Sturnus vulgaris</i> , <i>Linn.</i>	1-250 to 1-166	Testis black, one-fifth of an inch long and one-eighth broad; no spermatozoa; molecules very abundant.
March 18.	Ditto	1-80 to 1-50	Testis brownish white, three-fourths of an inch long and four-tenths broad; spermatozoa abundant; no molecules.
April 27.	<i>Philomela luscinia</i> , <i>Sw.</i>	1-75 to 1-60	Testis one-fourth of an inch long and one-fifth broad, containing a little black pigment; spermatozoa abundant.
April 6.	<i>Sylvia Phragmitis</i> , <i>Bechst.</i>	1-68	Spermatozoa abundant; testis same size as the Nightingale's.
Jan. 9.	<i>Fringilla domestica</i> , <i>Linn.</i>	1-333 to 1-222	Testis one-twelfth of an inch in diameter; no spermatozoa.
Feb. 2.	Ditto	1-250 to 1-200	Testis one-twelfth of an inch in diameter; no spermatozoa; many molecules.
March 4.	Ditto	1-166 to 1-109	Testis one-seventh of an inch long and one-tenth broad; numerous cells, about 1-

Table (continued).

Date.	Name of Animal.	Size of Tubes.	State of Testes, &c.
May 3.	<i>Fringilla domestica</i> , <i>Linn.</i>	1-80 to 1-66	1000th of an inch in diameter; great abundance of molecules; no perfect spermatozoa. Testis one-third of an inch long and one-fourth broad; spermatozoa plentiful; molecules not abundant.
Feb. 28.	<i>Fringilla Cœlebs</i> , <i>Linn.</i>	1-90 to 1-71	Testis one-tenth of an inch in diameter; numerous cells containing rudimentary spermatozoa, but none perfect; molecules very numerous.
May 4.	<i>Emberiza Citrinella</i> , <i>Linn.</i>	1-80 to 1-60	Testis one-third of an inch long and one-fourth broad, containing a little yellow pigment; spermatozoa very numerous; molecules not abundant.
May 22.	<i>Cuculus canorus</i> , <i>Linn.</i>	1-100 to 1-66	Testis one-fifth of an inch in diameter, of an intense yellow colour; numerous staff-like bodies in semen 1-2666th of an inch long and 1-25,000th broad. Died in confinement.
Nov. 26.	<i>Picus minor</i> , <i>Linn.</i>	1-571 to 1-363	Testis size of a rape-seed; no spermatozoa or molecules.
May 31.	<i>Cypselus Apus</i> , <i>Flem.</i>	1-130 to 1-100	Testis one-third of an inch long and one-fifth broad; spermatozoa numerous; molecules scanty.
Dec. 5.	<i>Columba Livia</i> , <i>Briss.</i>	1-444 to 1-285	Testis about as big as a hemp-seed; no spermatozoa; a few molecules.
May 12.	<i>Sterna Hirundo</i> , <i>Linn.</i>	1-240 to 1-200	Testis one-tenth of an inch in diameter; no spermatozoa; molecules plentiful.

Molecules of the Semen.—The molecules mentioned in the preceding table are minute, smooth, circular particles, much resembling, both in chemical and physical characters, the “minute oil-like spherules” which I have depicted in the juice of the supra-renal bodies (Appendix to Gerber’s Anatomy, p. 103). The “minute shining globules and smaller molecules,” described by Professor R.

Wagner in the semen of some Mammalia, and the "apparently spherical and dense particles" observed by Dr. Davy (Researches, Physiological and Anatomical, vol. i. p. 332) in the fluid of the human testicle, and which particles he conjectures may be the ova of the spermatozoa, are perhaps identical with the molecules of the semen. They are commonly rather smaller than the particles of the supra-renal gland. I have made many measurements of the molecules of the semen, and find them generally to be 1-20,000th of an inch in diameter, but almost always varying from 1-35,000th to 1-8000th, and of course not at all approaching in size and other respects to the well-known corpuscles and cells of the semen. The molecules, especially those of larger size, refract the light strongly; the smaller ones appear dark and opaque in the centre when the focus of the object-glass is elongated, and bright and transparent when the focus is shortened; while the smallest of all, like those of the supra-renal gland, often seem quite black or opaque, and exhibit very lively vibratory motions, particularly when diluted with water or acetic acid.

That the molecules are connected with the perfecting of the semen, would appear from the fact that they are most abundant in birds and reptiles when the testicles begin to enlarge, and either wholly disappear or become scanty as soon as the testicles are perfectly ripe and the spermatozoa most completely evolved. But very minute vibratory particles are often observable in the seminal tubes of foetal animals.

The figure of the molecules, like that of many other particles equally small, is apparently spherical, and, as already mentioned, they may present either a dark or bright central spot. But, as noticed in the Atlas to Gerber's Anatomy, p. 59, it is difficult to determine the exact shape of particles so exceedingly minute; and the elaborate researches of Dr. Barry (Phil. Trans. 1841, part 2) have rendered it probable that some of the particles which I have formerly mentioned (Appendix to Gerber's Anatomy, and London Medical Gazette for May and November, 1839) as "minute spherules" and "spherical molecules," are in reality discs.

Pigment.—In the foregoing table the black and yellow colour of the testicles of certain birds is noticed. I have carefully examined the black matter of the starling's testicles, and found it to be composed of very distinct pigmentary ramifications, made up of most minute particles, many of which, when floating in the field of vision, exhibit exceedingly active motions. In the winter the testicles are quite black, and the pigment, perhaps from the small size of the tubes, seems to be contained within them; but when the testicles are enlarged in the spring, they present a lighter or brownish white colour, from the accumulation of semen, and the pigmentary ramifications are evidently situated in or close to the coats of the tubes, the boundaries of which may be easily seen with a common hand-lens to be marked out by the black pigmentary dots.

Spermatozoa of the Cervidae and Camelidae.—Professor Wagner (Physiology, by Willis, p. 34) regards the spermatozoa as essential

elements of the seminal fluid ; and that the spermatozoa are essential to prolific semen seems now to be generally allowed. I merely mention the subject in connection with the statement of Sir Everard Home (Lectures on Comp. Anat., vol. v. ; well commented on in Dr. Davy's Researches, vol. i. p. 339), that the seminal animalcules have no real existence, and especially that he and Mr. Bauer had searched for them in vain, and with the best instruments and opportunities, in the seminal fluid of the fallow deer during the season of the rut.

I now exhibit to the Society drawings of the spermatozoa of the fallow deer, wapiti, and red deer, and shall be happy to show my preparations of the animalcules to any one who may be curious about them. I have repeatedly had opportunities of examining the spermatozoa of the fallow deer, and though they are most abundant at the time of the rut, they may be found commonly enough at other seasons. After the rut was passed in January and February, I found the spermatozoa plentiful in the red and fallow deer at Windsor. The animalcules were even then in various stages of development ; some coiled up two or three together, in cells, with granular matter ; others were still more rudimentary ; many appeared just ready to escape from the cells, while a still greater number were free and lively in the seminal canals. In the body of the spermatozoon of the red deer there is occasionally an appearance of internal granules or vesicles, as shown in the drawing.

As the *Camelidæ*, like the oviparous *Vertebrata*, have oval blood-corpuscles, it was interesting to ascertain the form of the spermatozoa of this ruminant family. In the dromedary I found that the seminal animalcules were much like those of other *Mammalia*, and so nearly resembling the animalcules of the *Cervidæ*, that there was a difference only of size, the spermatozoa of the dromedary being slightly smaller than those of the deer.

Chemical characters of the spermatozoa.—It is remarkable that the spermatozoa of *Mammalia* are but little or not at all affected by many chemical agents which quickly act on various other animal matters. These spermatozoa preserve their form and appearance when treated severally with nitric, muriatic, acetic, oxalic, tartaric and citric acids ; with concentrated solutions of earthy, alkaline, and metallic salts ; and with liquid ammonia.

But the spiral spermatozoa of birds are quickly dissolved, destroyed, or reduced to the most minute particles, by the acetic and other vegetable acids, while these animalcules are not much affected by muriatic acid, nor by caustic ammonia and saline solutions. Yet the cylindrical or club-shaped spermatozoa of birds are more nearly allied in chemical characters to the spermatozoa of *Mammalia*. The seminal animalcules of the common swift (*Cypselus Apus*), for example, remain perfectly entire and distinct after having been subjected to the action of citric or acetic acid. It may be incidentally mentioned that the spermatozoa of the snake (*Natrix torquata*) are not affected by acetic acid.

The matter in the seminal canals of *Mammalia* and Birds, when it

contains plenty of corpuscles, of which indeed it is almost entirely made up in immature animals, from the embryo upwards, is renderedropy by alkalies and by saline solutions. This action of these solutions, which is very remarkable on all animal fluids containing a great quantity of fresh primary or isolated cells, appears to take place from the effect on them of the reagents, as I have elsewhere described with respect to the lymph-globules (Gerber's Anatomy, Appendix, pp. 91, 96, and 97). In some recent experiments, however, these globules were not destroyed, but only a little misshapen or made rather fainter, after having been kept some days in solutions of muriate of ammonia and other salts.

"Descriptions of new species of *Delphinula*, a genus of Pectinibranchiate Mollusks (Family *Turbinacea*)," by Mr. Lovell Reeve.

DELPHINULA TYRIA. *Delph. testâ subdiscoideâ, squameâ, anfractibus argenteo-albis, supernè et infernè Tyrio-purpureis, laxè convolutis, umbilicum lævem lacco-purpureum formantibus, angulatis, squamis minutis, in seriebus parallelis dispositis, totaliter tectis; angulo serie unicâ majore funiculato; spirâ depresso-planâ.*

Icones Reeve, Conch. Syst., vol. ii. pl. 211. f. 6.

Long. $2\frac{1}{2}$; lat. $1\frac{3}{4}$. Mus. Cuming, &c.

Hab. Ad oras Novæ Hollandiæ.

This is the first discovered large species of *Delphinula* that is absolutely destitute of spines or nodules. The surface of the shell, which is entirely covered with small scales ranged in parallel series, is of clear silvery white; the upper and lower portions of the whorls are tinged with a rich Tyrian purple, and the umbilicus, which is smooth, is of a lighter lake purple.

DELPHINULA IMPERIALIS. *Delph. testâ subdiscoideâ spiniferâ et squameo-lirâtâ, anfractibus olivaceo-viridibus, ultimo pallidè purpureo, laxè convolutis, umbilicum amplum formantibus, subangulatis, angulo spinis gracillimis, squamæformibus, nigris, supernè inflexis, coronato; anfractuum parte alterâ spinis brevioribus, contrariè inflexis, in seriebus dispositis, interstitiis squamis nigris, minutis sigillatim impositis, ornatis; spirâ depresso-concarvâ.*

Delphinula melanacantha, Reeve, Conch. Syst., vol. ii. pl. 211. f. 4. and pl. 212. f. 10.

Long. $2\frac{1}{4}$; lat. $1\frac{3}{4}$ in. Mus. Cuming.

Hab. Ad insulam Mindanao, Philippinarum.

A magnificent specimen of this remarkable shell was dredged up by Mr. Cuming in — fathoms' water at —, one of the Philippine Islands, and we need only refer to our figures of it in the 'Conchologia Systematica,' in addition to the above description, to show how distinct is this species from any other of the genus. The shell is of a palish-green colour towards the apex, but the last whorl is purple and elegantly surmounted with a row of tall, black, slender, scale-like spines, bending over towards the point of the spire. Be-

low these are five other distinct rows of black spines; they are, however, shorter, and bend the contrary way, whilst the entire surface of the shell is ornamented with a number of very fine ridges of minute scales. We gladly avail ourselves of the opportunity of restoring to this shell the name by which it is commonly known amongst collectors, though not hitherto published.

DELPHINULA INCISA. *Delph. testâ globoso-discoideâ, liris purpureis angustis, subflexuosis, interstitiis albis profundè incisis, totaliter tectâ; anfractibus tuberculis grandibus, complicatis, distantibus, in serièbus duabus dispositis, ornatis; aperturâ rotundâ, margine inferiori lacunatâ; spirâ depresso-planâ.*

Icon. Reeve, Conch. Syst., vol. ii. pl. 212. f. 11.

Long. $1\frac{9}{10}$; lat. $1\frac{1}{2}$ in. Mus. Cuming.

Hab. Ad insulam Burias, Philippinarum.

This shell, which we believe to be at present unique, in the collection of Hugh Cuming, Esq., is well-characterized, by having a double row of large, pinched, stunted tubercles; and the tubercles, as well as the entire surface of the shell, is covered with a number of purple flexuous ridges, the interstices being white and unusually deeply cut.

DELPHINULA FORMOSA. *Delph. testâ rotundâ subdiscoideâ, levitèr nodiferâ, aureo-ochraceâ, cocceo-tinctâ, anfractibus perangulatis, angulo squamis grandibus, triangularibus valdè compressis, coronato; anfractuum parte inferiori squamarum minorum serièbus duabus, squamulisque ochraceo-coccineis minutis in serièbus parallelis, subflexuosis, dispositis, ornatâ; umbilico amplo purpureo-lacco vividè colorato; spirâ plano-convexâ.*

Icon. Reeve, Conch. Syst., vol. ii. pl. 212. f. 9.

Long. $1\frac{3}{10}$; lat. 1 in. Mus. Cuming.

Hab. Ad insulam Capul Philippinarum.

A very richly-coloured shell, found by Hugh Cuming, Esq., at Capul, one of the Philippine Islands, in seven fathoms' water. The upper portions of the whorls are clothed with a rich golden yellow colour, deeply tinged with scarlet or crimson; the lower part of the whorls are of a peculiarly soft white, and the umbilicus in all the specimens we have seen is coloured with a deep purple lake, entirely free from any indication of the yellow that ornaments the obverse portion of the shell.

DELPHINULA ACULEATA. *Delph. testâ subdiscoideâ, aculeatâ, albidâ, anfractibus perangulatis, angulo spinis squamæformibus flexuosis, dorsim coccineis, coronato, anfractuum parte inferiori spinarum serièbus duabus, aculeolisque squamæformibus in serièbus parallelis dispositis, ornatâ; spirâ depresso-planâ.*

Icon. Reeve, Conch. Syst., vol. ii. pl. 212. f. 8.

Long. $1\frac{1}{10}$; lat. $\frac{9}{10}$ in. Mus. Cuming.

Hab. Ad insulam Ticao Philippinarum.

This shell is not much unlike that of the preceding species; it differs, however, in having the angle of the outer whorl crowned with

a row of irregular, thin, flexuous, scale-like spines, the back of each being ornamented with scarlet, the only portion of colour in the shell; the surface is remarkable in being covered with a number of sharp prickles, particularly within and around the umbilicus.

Mr. Reeve also described a new species of the genus *Murex*.

MUREX STAINFORTHII. *Mur. testâ subsolidâ, globoso-ovatâ vix fusiformi, multivaricosâ, superfîcie pallido-aurantiâ, epidermide tenui indutâ, transversim liratâ, liris fusco-lineatis; spirâ breviusculâ, apice subobtusâ; anfractibus quinque, suturis indistinctis; anfractu ultimo varicibus octo ornato, cæteris, varicibus decorticatis, ferè obsoletis; varicibus per totam longitudinem densissimè frondosis, frondibus acutissimis, recurvis; canali brevi, latiusculo; aperturâ rotundâ, fauce crenulatâ, politâ, utrinque vividè aurantiâ.*

Long. $2\frac{1}{10}$; lat. $1\frac{1}{2}$ in. Mus. Inwood.

Hab. — ?

The very beautiful and characteristic shell above described has been handed to us by its fortunate possessor, Henry Inwood, Esq., accompanied with a request that it be named in honour of one of our most assiduous collectors, the Rev. Mr. Stainforth. And it is with no little pleasure that we have executed the task; for a shell more chaste in its colour and development, or more striking in its specific character, we do not remember to have seen. It is of a solid and somewhat globose structure, and is profusely ornamented with varices; there are eight distinct varices on the last whorl, and the remains of a similar number are visible on each of the former; but in the specimen before us, and which we believe to be unique, they are so decorticated as to have become almost obsolete. Each varix appears to have been formed by the sudden development of a number of coatings laid successively one upon the other. The edge of each of these coatings is then ornamented with a row of fine prickly branches, recurved back over the shell, and they only remain perfect to the last coating in consequence of those of the previous or under coatings having been necessarily in part removed or absorbed; unless indeed the under coatings are too rapidly developed, the one over the other, to allow of their marginal branches attaining the regularity and beauty of the last. The varix altogether has thus the appearance of being thickly studded from top to bottom with these delicate prickles: so delicately indeed are they formed, that it is only on the last or marginal varix of the shell that they remain in perfect order; in tracing them back round the body whorl, they may be observed to have become gradually more and more eroded. Should a specimen of this shell be found with all the varices in the same beautiful order as the marginal varix in this, it would indeed be "fair to look upon." The canal is rather short; the outer lip is strongly crenulated, and the crenulæ extend within the mouth of the shell, the whole of them, together with the broad columella, being covered with a highly polished orange enamel.

A letter from George Robert Gray, Esq., addressed to the Curator, was next read. This letter refers to the members of J. E. Gray's genus *Tetraogallus*, or Mountain Partridge, a rare species of which is at present in the Society's menagerie, having been brought from Northern Persia, and presented to the Society by E. W. Bonham, Esq., H.B.M. Consul at Tabrez. Mr. G. R. Gray is of opinion that there exist three species of the genus *Tetraogallus*, each peculiar to one of the three following localities, viz. Caucasus, the Himalayan and the Altai Mountains.

The bird in the Society's menagerie, Mr. G. R. Gray observes, is well figured in plate 76 of Jardine and Selby's 'Illustrations,' and the specimen figured is, like that belonging to the Zoological Society, from Persia. It is peculiar in having the head, neck and breast of a slate colour, passing into pale reddish brown on the upper part of the back; a dingy white streak extends from the nostril to the anterior angle of the eye; the chin and throat, as well as an oblong patch on the side of the neck, are white; the breast is of a dark slate colour, and has short wavy black lines, especially just below the white of the throat. The figure referred to represents the typical *Lophophorus Nigelli*, which is most probably identical with the *Tetrao Caucasica* of Pallas; and if this supposition be correct, the earlier specific name given by the author just mentioned should be retained, as *Tetraogallus Caucasicus*.

Mr. G. R. Gray also believes the *Chourtkia alpina* of Victor to be the same species as the bird under consideration.

In plate 141 of Messrs. Jardine and Selby's 'Illustrations,' a *Tetraogallus* is represented, which the authors suppose to be the male of the bird figured in plate 76; this is also delineated under the name of *Tetraogallus Nigelli* by Mr. J. E. Gray in the 'Indian Zoology.' This bird Mr. G. R. Gray, however, considers a distinct species, which is peculiar to the Himalaya Mountains, whence he has seen many specimens, all agreeing in colour. For this species the name *Tetraogallus Himalayensis* is proposed. It is distinguishable by its silky white neck and breast; a deep chestnut-brown line runs down, and partly surrounds the base of the neck, and the breast is variegated in front with black, each plume having a transverse band on the middle, which partly appears below the white tips of the other feathers.

The third species, *Perdix altaica* of M. Gebler, the distinctness of which there can be no doubt of, has the breast-feathers grey-black at the base; and this colour extends along the shafts, and forms an arched spot on each side of each feather: the under tail-coverts are white. It should be named *Tetraogallus altaicus*.

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August 9, 1842.

Richard Owen, Esq., Vice-President, in the Chair.

The following paper, "On the Blood-Corpuscles of the Ibex," by George Gulliver, Esq., F.R.S., was read.

Before my discovery of the singularly minute size of the blood-corpuscles of the Musk Deer*, those of the Goat were the smallest known. I have since found that the corpuscles of the Ibex are slightly smaller than those of the Goat, and therefore intermediate in size to the corpuscles of the Goat and those of the Musk Deer, as will be shown by the following measurements, which are given in vulgar fractions of an English inch. For the sake of comparison, the dimensions of the discs of the two latter animals are copied from my 'Tables of Measurements of the Blood-Corpuscles of Mammalia†.'

Ibex from Candia (*Capra Caucasica*, Guld.).

		Pale Globules of the Blood.
1-7500	Common sizes.	1-3200 Common size.
1-7275		1-4000 Small ditto.
1-7200		1-2666 Large ditto.
1-7000		
1-6858		1-3200 Average ditto.
1-6752		
1-6665		
1-9142	Small size.	
1-5650	Large ditto.	
1-7020	Average ditto.	

Common Goat (*Capra Hircus*, Linn.).

		Pale Globules of the Blood.
1-6665	Common sizes.	1-3000 Common size.
1-6400		1-3555 Small ditto.
1-6000		1-2666 Large ditto.
1-8000	Small size.	
1-5333	Large ditto.	1-3032 Average ditto.
1-6366	Average ditto.	

* See Med. Chir. Trans., vol. xxiii.; Dublin Med. Press, Nov. 27, 1839; Annals of Nat. History, Dec. 1839; and Lond. and Edin. Phil. Mag. of the same date.

† See Appendix to Gerber's Anatomy.

Napu Musk Deer (*Moschus Javanicus*, Pallas).

1-13400	} Common sizes.	Pale Globules of the Blood.
1-12000		1-3200 Common size.
1-16000	Small size.	1-4000 Small ditto.
1- 9600	Large ditto.	1-2666 Large ditto.
1-12325	Average ditto.	1-3200 Average ditto.

I may add that Mr. Siddall, who has lately at my request measured the blood-corpuscles of the Ibex and of the Goat, has obtained almost exactly the same results as those above specified.

Mr. Gulliver also communicated a paper "On the Blood-Corpuscles of the British Ophidian Reptiles." To this communication are added some observations on the figure of the blood-corpuscles of other oviparous Vertebrata.

"The observations were made on perfectly fresh blood, and the corpuscles measured as they floated in the serum.

"Though the blood-discs of Birds and Reptiles preserve their shape very clearly when rapidly dried on a slip of glass, they generally appear in this state slightly but distinctly smaller than when suspended in the serum of recent blood; whereas, when the blood-discs of Mammalia are dried in precisely the same way they are commonly slightly larger than in the wet state, as I have noticed more particularly in the 'Philosophical Magazine' for January and February 1840, pp. 25 and 105."

"In Mammalia the envelope of the corpuscle is more delicate, more susceptible of contraction and of modifications of form, and apparently softer, than in Birds and Reptiles; so that the corpuscles of Mammals are more liable to shrink a little soon after removal from the circulating channels, than the corpuscles of Birds and Reptiles; and it may be that this softness of the blood-disc of Mammals allows it to spread out in some degree, even when dried ever so quickly. But it is more probable that the corpuscles preserve their usual size and form when dried almost instantaneously, and that the shrinking or modifications of shape which the corpuscles may undergo in liquid, coagulating, or slowly-dried blood, may be influenced as much by changes in the surrounding fibrine as by a contractility inherent in the corpuscles. The envelope of the blood-disc of Fishes is much more delicate and evanescent than the same part in Birds and Reptiles; hence in the blood of Fishes, even soon after death, the nuclei will be observed in great abundance, while the envelopes have partially or entirely disappeared; and the form of the entire corpuscles is not so easily preserved by drying as in the other oviparous vertebrate animals.

"The following measurements of the blood-corpuscles of the Slow Worm, Snake, and Viper, are all expressed in vulgar fractions of an English inch. The common sizes are first set down, then a space is left; the small and large discs are next noted, and lastly the ave-

rage, deduced from the numbers above, is placed beneath the lines.
L.D. stands for Long Diameter, and S.D. for Short Diameter.

March 19, 1842.—Slow Worm (*Anguis fragilis*, Linn.).

L.D.	S.D.
1-1200	1-2666
1-1143	
1-1333	1-4000
1-1067	1-2000
1-1178	1-2666

Pale Globules of the Blood (abundant).

1-2626
1-2900
1-2400
1-2626

Sept. 9, 1841.—Common Snake (*Natrix torquata*, Ray).

L.D.	S.D.	Thickness.
1-1333	1-2400	1- 8000
1-1455	1-2000	
1-1777	1-2666	1-10666
1-1090	1-1777	1- 7110
1-1371	1-2157	1- 8341

Nuclei, exposed by dilute acetic acid.

L.D.	S.D.
1-4000	1-7110
1-5333	1-9140
1-2900	1-5333
1-3835	1-6817

Pale Globules of the Blood (tolerably numerous).

1-2400
1-3200
1-1777
1-2322

“The pale globules were generally granular and opaque, though some of them were thin and transparent at the edges, as if growing into discs. In the blood there were many circular discs of a deep red colour, and generally 1-2666th of an inch in diameter. The regular discs were rounded at the edges, and almost all flat; but a

very careful search might occasionally detect one or two with slight gibbosity of the surfaces opposite to the nucleus.

March 24, 1842.—Viper (*Coluber Berus*, Linn.).

L.D.	S.D.
1-1333	1-1777
1-1500	1-2400
1-1067	1-1455
1-1274	1-1800

Nuclei, exposed by acetic acid.

L.D.	S.D.
1-3555	1-5333
1-3000	1-4800
1-4000	1-6400
1-2666	1-4000
1-3227	1-4986

"The discs were clearly gibbous on the surfaces opposite to the nucleus. The pale globules were very numerous, and their common diameter was 1-2666th of an inch.

"*Figure of the Corpuscles.*—From the preceding measurements it results, that although the blood-discs of the Viper and Snake present the form of an ellipse rather less than twice as long as it is broad, in the Slow Worm the elliptical figure of the discs is more elongated, since its length is considerably more than twice its breadth.

"As M. Mandl states, all observers had agreed that the long diameter of the oval blood-corpuscles of vertebrate animals was never more than one and a half or twice the short diameter, when he described the corpuscles of the *Crocodylidae* as forming a singular exception to this rule; because he found that the long diameter of the blood-discs of *Crocodylus Lucius* was between two and three times as much as the short diameter. I am not aware whether M. Mandl had examined any other species of this family; but, as described in the 'Proceedings of the Zoological Society,' Nov. 10, 1840, I found that in *Crocodylus acutus* and in *Champsia fissipes* the corpuscles had the most common oval form, the length being rather less than twice the breadth*.

"In the 'Proceedings of the Zoological Society,' June 9, 1840, I showed that the blood-corpuscles of some birds differ greatly in figure from the corpuscles of other congenerous species. The corpuscles of the Snowy Owl (*Syrnia nyctea*), for example, are singu-

* In an alligator, the species of which was not determined, I found the blood-corpuscles of the same shape. The animal came from Tampico Bay, Vera Cruz, and died at the gardens of the Society in the beginning of October 1842.

larly elongated ellipses, while the corpuscles of the Common Brown Owl have the usual oval form; and a similar peculiarity, though in a less degree, was observed in comparing the corpuscles of the Passenger Pigeon (*Columba migratoria*) with those of other allied species.

"Subsequently I have mentioned, in the 'Appendix to Gerber's Anatomy,' that the corpuscles of Birds may present, comparatively, either the figure of a very broad or of a very narrow ellipse. Of the latter shape, examples may be found in the corpuscles of the Great Butcher Bird (*Lanius excubitor*), Nightingale (*Philomela lusciniæ*), Snow Bunting (*Plectrophanes nivalis*); and of the former shape in the corpuscles of the Java Sparrow (*Loxia Javensis*), and several other granivorous birds.

"The nucleus of the blood-corpuscles of Birds, when exposed by acetic acid, has almost always a more elongated form than the unchanged envelope, as mentioned in the book just quoted. But to this rule I have since found a few remarkable exceptions. In the Common Fowl (*Gallus domesticus*), for instance, the nucleus is a very short ellipse, and even sometimes nearly or quite circular. For the difference between the shape of the nucleus, when exposed by acetic acid, or by soaking the corpuscles in water, a figure may be consulted which I have given to illustrate this subject in my 'Contributions to Minute Anatomy,' Lond. and Edin. Phil. Mag., August 1842, page 109."

A paper was then read from Mr. Gould, in which he gives the characters of two new genera of Birds, one belonging to the family *Sylviadæ* and the other to the *Psittacidæ*.

"Having observed," says Mr. Gould, "during my late visit to Australia, much difference to exist in the habits of the birds usually placed in the genus *Platycercus*, I was naturally led to investigate the matter as fully as circumstances would admit, and on examination of the two birds known as *Pl. erythropterus* and *Pl. scapulatus*, I found that the difference of their habits from those of the typical *Platycerci* was accompanied by a sufficient difference in their anatomy to warrant their separation into a distinct genus. Independently of the variations indicated in the generic characters given below, these birds are remarkable for possessing a tolerably well-developed *os furcatorium*, which bone is entirely wanting in the true *Platycerci* and *Euphemi*: in their habits they approach nearer to the Lories, are of a dull and sullen disposition, and do not readily become tame and familiar like the *Platycerci*; they are also essentially arboreal, procuring their food among the branches of the trees; while the *Platycerci* resort to the ground and feed principally upon grass seeds."

These two birds he therefore proposed to erect into a new genus, under the appellation of

APROSMICTUS.

Gen. Char. ut in Platycerco.—*Rostrum* attamen debilius, ceromate plumis tenuibus instar pilorum nares adumbrantibus instructo.

Alæ longiores et minùs concavæ. *Cauda* magis quadrata. *Tarsi* breviores. *Digit*i longiores.

Types.—*Platycercus scapulatus* and *erythropterus*, which will now stand as *Aprosmictus scapulatus* and *A. erythropterus*.

The other birds which Mr. Gould proposed to form into a new genus are the *Petroica rhodinogaster* of Messrs. Jardine and Selby, and the *Petroica rosea* of himself. These birds are much more arboreal in their habits than the true *Petroicas*, which are expressly adapted for the ground, while these are equally so to the thick brushwood, to the deepest gullies among which they usually resort. For this group he proposed the designation of

ERYTHRODRYAS.

Gen. Char. ferè ut in Petroicid.—*Rostrum* attamen brevius, ad basim magis depressum, et vibrissis tenuibus anticè ductis naresque adumbrantibus instructum. *Alæ* breviores, magis rotundatæ; primariis primo et secundo brevissimis, quinto longissimo. *Tarsi* breviores. *Digit*i longiores; externi inter se ferè æquales. *Ungues* acutiores et magis incurvati.

Type.—*Erythrodryas rhodinogaster* (*Petroica rhodinogaster*, Jard. and Selb.).

To this genus also belongs the species characterized by him in the Proceedings of the Zoological Society for 1839, p. 142, under the name of *Petroica rosea*, which will now stand as *Erythrodryas rosea*.

August 23, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

Mr. Prince exhibited, on the part of Mr. Gould, two new species of Australian Birds. These Mr. Gould characterizes as follows:—

ASTUR CRUENTUS. *1 t. capite et occipite plumbeis; torque nuchali castaneo; s. conique eplumbeo-fuscis; fusco colore apud dorsum magis evidente, plumbeo apud ceteras partes; remigum primorane, ad basim albescentibus et plumbeo-fasciatis; corpore cinereo, f. rebris, angustis et semicircularibus.*

Male.—Crown of the head and occiput slate-colour; sides of the face grey; at the back of the neck a collar of bright red; back, wings and tail slaty brown, the brown hue predominating on the back and the slate-colour upon the other parts; inner webs of the primaries fading into white at the base, and crossed by bars of slate-colour; the interspaces freckled with buff; inner webs of the tail-feathers marked in a precisely similar manner; chin buffy white; all the under surface rust-red, crossed by numerous narrow semicircular bands of white; irides bright yellow; cere dull yellow; bill black at the tip, blue at the base; legs and feet pale yellow; claws black.

Total length, 14 inches; bill, $\frac{1}{3}$; wing, 7; tail, 6; tarsi, $2\frac{1}{2}$.

Hab. Western Australia.

This species is intermediate in size between *Astur approximans* and *Accipiter torquatus*, but is of a more grey or blue colour on the back, and has the transverse lines on the breast narrower and more rufous.

LOBIVANELLUS PERSONATUS. *Lob. vertice et occipite nigerrimis; faciei lateribus nuchâ, uropygio, et corpore inferiore albis; dorso et plumis scapularibus pallide fuscescenti-cinereis; paleis pendentibus flavis; rostro ad basim flavis ad apicem nigris; pedibus e carneo-rubris.*

Crown of the head and occiput jet-black; sides of the face, back of the neck, rump, and all the under surface pure white; back and scapularies light brownish grey; wing-coverts grey; primaries deep black; secondaries white at the base on their inner webs, cinnamon-grey on their outer webs, and largely tipped with black; the extreme ends of the feathers being cinnamon-grey, particularly the two central ones; irides primrose-yellow; wattles lemon-yellow; bill lemon-yellow at the base, black at the tip; legs and feet carmine-red; the scales in front blackish green.

Total length, 12 inches; bill, $1\frac{3}{4}$; wing, $8\frac{3}{4}$; tail, 4; tarsi, $2\frac{3}{4}$.

Hab. North coast of Australia.

This species is of the same size, but more elegantly formed than the *Lob. lobatus*, the fleshy wattles more extensively developed, the crown of the head only black, and not the back and sides of the neck, as in that species.

Mr. Waterhouse exhibited several species of Mammals, collected in Borneo by the Society's Corresponding Member, James Brooke, Esq., and recently forwarded to England by that gentleman.

Among these specimens was a fine example of the *Paradoxurus Derbianus*, Gray, an animal which has also received the names *Paradoxurus Zebra*, *Hemigalea Zebra*, and *Viverra Boiei*.

Two specimens of *Gymnura*, a specimen of the *Prionodon gracilis*, and two species of Squirrel, also formed part of the collection.

The *Gymnuri* differ much in colouring from the *G. Rafflesii*. Instead of having the fur black, and with longer interspersed white hairs, the Bornean specimens are entirely of a yellowish white colour, with the exception of the long bristly hairs interspersed with the ordinary fur, which are some of them black. In other respects the Sumatran and Bornean specimens of *Gymnura* agree so closely that Mr. Waterhouse did not regard the difference in colouring as indicative of specific distinction.

The existence of the *Prionodon gracilis* in Borneo is noticed by Müller, who applies to the animal the name *Linsang gracilis*. Believing the skull of this animal had never been described or figured, Mr. Waterhouse called attention to the peculiarities in its structure.

In some of its external characters, especially in the structure of its feet, with their truly retractile claws, the *Prionodon* evinces an affinity to the Cats, which would lead the naturalist to seek for some corresponding points of resemblance in the skull; this, however, presents all the characteristics of the *Viverridæ*: it is of the same elongated form; the lower jaw is long and slender, and the rami are curved, so that the angular portion and symphysis are raised. Compared with other *Viverridæ*, the *Prionodon* skull is remarkable for the thinness of the bones and the very slight development of the muscular ridges. In general form it approximates more nearly to *Paradoxurus* than to *Viverra* or *Genetta*. The zygomatic arch, which is slender, is thrown more boldly outwards than in the last two mentioned genera, and the posterior portion of the cranium does not exhibit the sudden contraction immediately behind the posterior root of the zygomatic arch which we observe in the *Viverras* and *Genets*. The post-orbital process of the temporal bone is but little prominent, being in the form of an obtuse angle; the skull differing in this respect from that of *Paradoxurus*, as well as in having the palate continued considerably beyond the line of the posterior molars. The muzzle is much compressed. The temporal ridges are rather widely separated and but slightly marked, though, judging from the dentition, the animal was adult. The ant-orbital opening is larger than in *Genetta* and less advanced, and hence the branch of the superior maxillary which forms its upper boundary is narrower, as in *Paradoxurus*. In the form of the lower jaw there is a close ap-

proximation to *Paradoxurus*; the only important difference consists in the smaller antero-posterior extent of the coronoid process.

The teeth in *Prionodon* differ much from those of *Paradoxurus*; indeed, were the dentition alone to be considered, these two genera would be placed at opposite extremes of the Viverrine group, the last-mentioned genus evincing the nearest approach to an omnivorous diet, whilst the *Prionodon* possesses teeth the most unfitted for mastication.

The incisors are arranged closely together, and in a straight line; the incisor on each side of both jaws, nearest the canines, is rather larger than the others, which are slightly notched at the extremity. The canines are rather long, very slender, and moderately curved.

The false molars, which are $\frac{3 \cdot 3}{4 \cdot 4}$, are much compressed, high, and sharply pointed. The foremost false molar, both of upper and lower jaws, is small, and has a small tubercle on the hinder part of the principal cusp. The second and third false molars of the upper jaw have each two small notches, and a corresponding number of small tubercles on the posterior margin and at the base of the principal cusp; and there is an indistinct tubercle in front, near the base: the second, third, and fourth false molars of the lower jaw have also the double notch behind, but differ in having a distinct, though small, anterior cusp. The first and second false molars of both jaws are separated from the other teeth and from each other by interspaces, of which the broadest is that which separates the second and third of these teeth in the upper jaw, the space here being nearly a line in width. The carnassier of the upper jaw very nearly resembles that of the Cat, but the central cusp is higher, and the inner tubercle is proportionally smaller. The carnassier of the lower jaw may be best described by comparing it with the corresponding tooth in the Genet, from which it differs only in having the cutting edges rather more produced, in being more compressed; the inner tubercle is more pointed, and the heel proportionately smaller. As regards the true molars, the present animal differs from other *Viverridae* in possessing but one of these teeth on each side of the upper jaw; its true molars are therefore $\frac{1-1}{1-1}$, and this certainly does not arise from

immaturity in the animal. The form of this tooth closely resembles that of the foremost of the two upper true molars in *Genetta*, but is proportionately rather smaller and the tubercles are somewhat more developed. The true molar of the lower jaw is a mere rudimentary tooth, and differs from that of *Genetta* and other *Viverridae*, not only in its small size, but in being of a compressed form: its cutting edge is divided by notches into three parts.

In the possession of but one true molar in the upper jaw, *Prionodon* would appear to approach the *Felidae*; but the structure of this tooth, it must be observed, is essentially the same as in the *Viverridae*, and it is combined with a small true molar in the lower jaw, which is never found in the Cats.

On the whole, *Prionodon* approaches most nearly to the Genets as

regards its dentition; but in the general structure of the skull, Mr. Waterhouse observed, it evinced an affinity with the *Paradoxuri*, to which group it appeared to be linked by the *Paradoxurus Derbianus*, or *Hemigalea Zebra*. Links are nevertheless wanting to prove that *Prionodon* should be regarded as an offset from the Paradoxurine group.

One of the two Squirrels alluded to is the *Sciurus ephippium*, described in Dr. Müller's great work on the Zoology of the Dutch Possessions in the Indian Archipelago. The other closely resembles the *Sc. Prevostii* or *Rafflesii*, and may be a variety of that species; it differs in being smaller; the cheeks are freely pencilled with rusty red, instead of being grey as in *Rafflesii*, and the sides of the muzzle are of the same reddish hue, not having the white patch which is observable in Sir S. Raffles's Sumatran specimen; the outer side of the thighs has a grey tint, produced by the admixture of black and white; the hairs being of the former colour, but white or yellowish white at the point. In the type of *Rafflesii* the same part is furnished with uniform white hairs, excepting the hinder part of the thigh, which is black. The tail is uniform black in that animal, but the Bornean specimen has the hairs tipped with white in such a way as to produce rings; these rings, however, do not extend to the apical portion of the tail, about two inches of which is uniform black. The hairs covering the ears are partly black, but chiefly of the same rich rusty red as are all the under parts of the animal. The Sumatran animal has black ears. Dr. Müller, in the work before quoted, describes specimens of a squirrel from Borneo, which he regards as a variety of *Sc. Rafflesii*, and which agree closely with the specimen from Mr. Brooke's collection; this, however, has the hairs on the upper parts of the body of an uniform glossy black colour; Dr. Müller observes they are generally terminated with yellowish points in the specimens he met with.

September 13, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

The first paper read was from J. O. Westwood, Esq. It contains descriptions of some Coleopterous Insects from tropical Africa, belonging to the section *Heteromera*, and is the continuation of a paper on the same subject, communicated to the Society August 24th, 1841, an abstract of which will be found in the 'Proceedings' of that date.

Genus CALOSTEGIA.

Corpus magnum oblongum. *Caput* mediocre, clypeo margine antico recto, angulis anticis valdè porrectis basin labri recipientibus. *Antennæ* crassæ breves, articulis 7-10 præcedentibus majoribus, ultimo majori apice subacuto. *Mandibulæ* ad apicem bidentatæ denteque altero majori in vel versus medium marginis interni armatæ. *Maxilla* lobo interno in dentem corneum obtusum hamatum terminato. *Palpi maxillares* articulo ultimo securiformi. *Mentum* latum lateribus rotundatis, basi valdè constrictum. *Labium* quadratum. *Palpi labiales* articulo ultimo ovali. *Prothorax* subquadratus anticè paullò latior, lateribus versus angulos anticos serratis. *Elytra* oblongo-ovalia lævia metalli-colorata. *Pedes* crassi, femoribus omnibus ante apicem bispinosi; tibiis intus, ante et pone medium sinuatis.

CALOSTEGIA PURPURIPENNIS. *Cal. nigra subopaca lævis, elytris purpureis sub lente tenuissime striato-punctatis.*

Long. corp. lin. 17; lat. elytror. ferè lin. 6.

Hab. in Ashantee. Mus. D. Hope.

NYCTOBATES MÆRENS. *Nyct. niger subnitidus, capite thoraceque sub lente tenuissime punctatis, elytrisque tenuissime striato-punctatis, pedibus longis, tibiis subincurvis, thoracis angulis posticis acutis.*

Long. corp. lin. $8\frac{1}{2}$; lat. elytr. pone medium lin. $3\frac{3}{4}$.

Hab. in Guineâ. In mus. nost. communic. D. Raddon.

Totus niger parùm nitidus. *Caput* margine antico (clypeo incluso) subsemicirculari, clypei utrinque incisione parvâ in lineâ obliquâ impressâ desinente distinguendo; lineâque alterâ impressâ longitudinali utrinque ad marginem internum oculorum. *Superficies* capitis regulariter punctata punctis parvis. *Antennæ* articulo primo crasso longitudine 4^{ti}, 2^{do} minuto, 3^{tio} longo, cæteris longitudine ferè æqualibus at sensim latioribus, 5 ultimis compressis setosis, ultimo ovali, basi truncato, apice rotundato. *Mandibulæ* subtrigonæ apice acutæ, intus edentatæ sed spatio mediano membranaceo. *Maxilla* lobo in-

terno in uncum corneum terminato. *Palpi maxillares* articulo ultimo securiformi. *Mentum* subquadratum anticè paullò latius, anticè carinâ curvatâ instructum: labium breve transversum. ciliatum. *Palpi labiales* breves articulo ultimo dilatato-ovali apice truncato. *Prothorax* capite multo latior, margine antico truncato, lateribus rotundatis, angulis posticis acutis; marginatus, margine antico tamen in medio interrupto; superficies tota crebre punctata, punctis minutis et non approximatis. *Elytra* basi thorace latiora, humeris rotundatis; sensim latiora, apice utrinque parùm sinuata; dorso gibboso superficies sub lente quasi coriacea; singulo striis 9 e punctis minutis formatis oculo nudo vix conspicuis, striâ internâ propè scutellum abbreviatâ. *Pedes* longi, graciles, femoribus anticis crassioribus; omnibus apice inermibus; tibiis anticis pone medium parùm intus curvatis, apice externè intus setoso, extus obliquè truncato, tibiis 4 posticis subrectis, medio vix subincurvato, apiceque subinflexis; calcaribus omnibus minutissimis.

NYCTOBATES CONFUSUS. *Nyct. niger laevis subnitidus, elytris latioribus, pronoti lateribus in medio sinuatis et sanguineo-marginatis.*

Long. corp. lin. 1; lat. elytr. pone med. lin. 5.

Hab. in Africâ æquinoxiali. Mus. Soc. Linn. Lond. D. Banks.

Caput nigrum, sub lente tenuissime punctatum carinâ longitudinali utrinque versus marginem internum oculorum. *Antennæ* articulis apicalibus latioribus. *Pronotum* transversè quadratum, angulis anticis obliquè truncatis et parùm rotundatis, lateribus in medio sinuatis tenuissime marginatis, angulis posticis acutis ferè rectangulis; sub lente tenuissime punctatum; lateribus latè et obscurè sanguineis, colore sanguineo ante medium intus acutè producto, dorso nigro; margine postico in medio versus scutellum parùm producto. *Elytra* nigra nitida lævia, latiora quàm in congenericis, præsertim pone medium, apicem versus attenuata; sub lente seriebus 8 longitudinalibus punctorum minorum. *Pedes* longitudine mediocres, graciles, tibiis simplicibus ferè rectis.

Individuum in mus. D. Hope vidi lineas $9\frac{1}{2}$ tantum habens, staturæque parùm minus robustâ; vix tamen species distincta.

NYCTOBATES PUNCTATUS. *Nyct. niger obscurus, prothoracis angulis anticis rotundatis, lateribus in medio incisis angulisque posticis acutis, elytris punctato-striatis, antennis sensim dilatatis.*

Long. corp. lin. $9\frac{3}{4}$; lat. elytr. pone med. lin. ferè 4.

Hab. in Guineâ. In mus. D. Hope, comm. D. Westermann.

Syn. *Helops punctatus*, Fabr., Syst. Eleuth. i. 161.

Caput obscurum sub lente tenue punctatum; clypeo posticè impressione transversâ e vertice separato, carinâque utrinque ad marginem oculorum. *Antennæ* mediocres sensim ad apicem incrassatæ compressæ, linea tenui mediâ impressâ posticâ. *Prothorax* subquadratus angulis anticis rotundatis, lateribus in medio sinuatis, tenue marginatis, angulis posticis acutis et parùm extus productis; margine postico versus scutellum posticè producto. *Elytra* thorace haud multo latiora pone medium parùm latiora, singulo seriebus 8 longitudinalibus punctorum impressorum magnitudine irregularium, striâ-

que alterâ abbreviatâ versus scutellum; striis 1 et 2 ad basin connexis; striæ 5 et 6 longe ante apicem conjunguntur; striæ 3 et 4 propriiores, 2 et 7, et 1 cum 8vâ connexis. *Pedes* longitudine mediocres, tibiis simplicibus et ferè rectis. *Mesosternum* anticè bidentatum, prosterni apicem acutum recipiens.

I give the insect here described as the true *H. punctatus*, Fab., on the authority of a specimen received by the Rev. F. W. Hope from Copenhagen, from M. Westermann, who has such excellent opportunities of determining those Fabrician species which were described from the cabinets of Lund and Sehestedt, as was the case with the present species. This is the more important, as the Fabrician description is so slight as to be applicable to scores of species of Heteromerous insects.

NYCTOBATES HYPOCRITA. *Nyct. niger subobscurus tenuissime punctatus, prothoracis lateribus subrotundatis integris angulis anticis acutis, antennis longioribus apice parùm latioribus.*

Long. corp. lin. $8\frac{3}{4}$; lat. elytr. pone med. lin. $3\frac{1}{2}$.

Hab. in Guineâ. In Mus. D. Hope, comm. D. Westermann.

Syn. Iphthinus Hypocrita, Dej., Cat. sine descr.; Iphthinus Guineensis, Westermann, MSS.

Niger subobscurus. *Caput* (præsertim in clypeo) et prothorax punctata; clypeus e vertice lineâ impressâ curvatâ vix separatâ, carinâ utrinque parùm elevatâ ad marginem internum oculorum. *Antennæ* graciles articulis 3 vel 4 ultimis parùm latioribus compressis. *Prothorax* subquadratus, lateribus subrotundatis marginatis integris angulis posticis acutis; margine postico ferè recto tenuè marginato. *Elytra* parùm convexiora quàm in reliquis; singulo sulcis 8 profundis longitudinalibus et punctatis, inter se connexis ut in specie præcedenti; pone medium paullò latiora et posticè acuminata. *Pedes* longiores, simplices, tibiis parùm curvatis.

NYCTOBATES TRANSVERSALIS. *Nyct. niger subobscurus subpunctatus, capite parvo, oculis magnis, antennis apice haud incrassatis, prothorace transverso angulis anticis rotundatis, lateribus integris, elytris striato-punctatis.*

Long. corp. lin. $9\frac{1}{2}$; lat. elytr. lin. 4.

Hab. apud Sierram Leonam. In mus. D. Hope et Waterhouse.

Caput sub lente punctatum, præsertim in clypeo magno transversovato, e vertice lineâ forti impressâ semicirculari diviso; oculi magni, angulis internis intus productis, spatio parvo intermedio tantum relicto; carinæ duæ interoculares subobsoletæ. *Antennæ* breves subdepressæ, articulis 7 ultimis subæqualibus apicem versus haud incrassatis. *Prothorax* latior quàm longus lateribus tenuè marginatis subrotundatis integris angulis posticis vix acutis; margine postico ferè recto; dorso tenuè punctato. *Elytra* ferè parallela, thorace latiora, angulis humeralibus obliquè truncatis longitudinaliter sulcatis, sulcis sub lente punctatis, striâque alterâ abbreviatâ versus scutellum. *Pedes* graciles simplices, tibiis ferè rectis.

NYCTOBATES BREVICORNIS. *Nyct. niger, capite et pronoto tenuis-*

sime punctatis, antennis brevibus, prothorace quadrato lateribus parallelis, elytris punctato-striatis, pedibus brevibus.

Long. corp. lin. 11; lat. elytr. lin. $4\frac{1}{4}$.

Hab. in mus. D. Hope.

Caput sub lente tenuissime punctatum, clypeo e vertice vix separato, carinisque interocularibus obsoletis, oculi margine interno rotundato. *Antennæ* vix capite longiores articulis 6 apicalibus compressis subæqualibus. *Prothorax* quadratus lateribus ferè rectis et parallelis angulis anticis rotundatis, posticis vero acutis margine postico in medio paullò rotundato-producto; disco tenuissime punctato lineâ tenuissimâ punctorum medianâ. *Elytra* subparallela elongata, prothorace parùm latiora, singulis seriebus 8 punctorum profundè impressorum, striâque basali interruptâ punctatâ versus scutellum. *Pedes* breves simplices, tibiis ferè rectis.

NYCTOBATES ROTUNDICOLLIS. *Nyct. niger subopacus, capite pone oculos utrinque sulcato, thorace rotundato varioloso-punctato, elytris profundè punctato striatis.*

Long. corp. lin. 7; lat. elytr. lin. $2\frac{3}{4}$.

Hab. in Sierrâ Leonâ. In mus. D. Hope et Waterhouse.

Caput punctatum, clypeo magno e vertice impressione curvatâ separato. *Oculi* majores, carinis interocularibus obsoletis, sulco utrinque ex angulo interno oculorum ad prothoracem ducto. *Antennæ* breves, articulis 6 ultimis majoribus subæqualibus subtriangularibus latis depressis ultimo majori. *Prothorax* rotundatus lateribus rotundatis, angulis posticis subobtusis, disco varioloso punctatissimo; margine postico magis marginato quàm laterali, et in medio parùm versus scutellum rotundato. *Elytra* lateribus ferè parallelis, angulis humeralibus rotundatis, singulo striis 9 punctorum profundè impressorum, striis 4 et 5, 3 et 6, 7 et 8, 2 et 9, ad apicem conjunctis. *Pedes* breves simplices, tibiis rectis, femoribus anticis crassioribus.

Genus NESIOTICUS.

Corpus breve rotundatum valdè gibbosum. *Caput* mediocre, breve margine antico (clypei) et lateribus (ante oculos) elevatis, vertice parùm concavo. *Labrum* breve transversum, angulis anticis rotundatis, ciliatum. *Mandibulæ* trigonæ crassæ, extus rotundatæ, intus sinuatæ, cavitate parvâ in medio. *Maxillæ* lobo externo majori, subarticulato, valdè setoso, interno setoso inermi. *Palpi maxillares* crassi, articulo ultimo maximo securiformi. *Mentum* oblongum, anticè paullò latius angulis anticis acutè productis. *Labrum* subquadratum angulis anticis rotundatis, setosum. *Palpi maxillares* breves articulo ultimo ovato, apice subtruncato. *Antennæ* prothorace ferè longitudine æquales articulo basali detecto, 3^{tio} 4^{to} duplo longiori, hoc ad 10^{um} latitudine parùm crescentibus compressis, longitudine æqualibus, articulo 11^{mo} præcedenti parùm longiori subrotundato. *Prothorax* transversus, anticè angustior, lateribus subrotundatis, angulis posticis acutis. *Scutellum* triangulare. *Elytra* valdè convexa ovali-rotundata, thorace ferè duplo latiora. *Pedes* simplices longitudine ferè æquales, tibiis rectis, tarsis subtus setosis, marginibus acutis. *Mesosternum* obtusum paullò porrectum. *Venter* 5-annulatus.

NESIOTICUS FLAVOPICTUS. *Nes. niger nitidus lævis, elytrorum humeris apicibusque signaturis flavo-notatis.*

Long. corp. lin. 8; lat. elytr. lin. $4\frac{1}{2}$.

Hab. Gold Coast, Africae tropicae. In mus. Westw. comm. D. Raddon.

Niger nitidus lævis sub lente haud punctatus capite excepto. *Labrum* piceum. *Antennae* nigrae articulo ultimo apice brunneo. *Vertex* tenuissime punctatus. *Thorax* lateribus tenuissime marginatis. *Elytra* valdè convexa nitida, singulo lineis 8 punctorum minorum impresso; fasciâ tenui transversâ flavâ versus basin ad suturam interruptâ, et cum strigâ marginali, alterâque mediâ longitudinali versus basin elytrorum extensâ connexâ; singulo elytro etiam versus apicem signaturâ tenui subtriangulari ejusdem coloris notato.

Genus OGCSOMA.

Corpus breve latissimum. *Caput* mediocri carinâ utrinque e margine antico et interno oculorum ferè ad basin mandibularum ductâ. *Antennae* longitudine capitis et prothoracis, graciles, vix versus apicem crassiores, articulo 3^{to} longissimo, 4^{to} et reliquis subaequalibus setosis. *Mandibulae* crassae, extus rotundatae, apice subbifidae, margine interno ferè recto. *Labrum* transversum emarginatum. *Mandibulae* lobis duobus membranaceis ciliatis. *Palpi maxillares* articulo ultimo magno securiformi. *Mentum* obconicum basi truncatum et angustatum angulis anticis acutis, in medio longitudinaliter carinatum. *Labium* cordatum. *Palpi labiales* articulo ultimo majori ovali, apice acuminato. *Prothorax* latior quàm longus, convexus, lateribus in medio rotundato-angulatis, angulis anticis et posticis acutis. *Elytra* prothorace multo latiora, convexa, rotundata, interrupto-costata. *Pedes* mediocres graciles setigeri.

OGCSOMA GRANULARE. *Ogc. nigrum sericeum prothorace punctis duobus rotundatis discoidalibus, elytris irregulariter et interrupto-costatis, antennis pedibusque cinereo-setosis.*

Long. corp. lin. 6; lat. elytr. lin. 4.

Hab. in Gambiâ. In mus. Westwood.

Caput et thorax nigra, sericea, (sc. sub lente) tuberculis minutissimis alterisque majoribus sparsis nitidis obsita; hoc lateribus sub medio angulato-rotundatis, marginatis. *Elytra* nigra et magis nitida, minutissime granulata, tuberculisque numerosis majoribus elongatis et irregularibus, costas duas in singulo elytro quodammodo formantibus; lateribus marginatis et deflexis latera abdominis cingentibus. *Pedes* sat breves graciles, tibiis posticis parùm curvatis.

Genus MEGACANTHA.

Corpus robustum, crassum, convexum. *Caput* breve, punctatum, lateribus ante oculos elevato-tuberculatis. *Oculi* reniformes. *Labrum* transversum, angulis anticis rotundatis. *Mandibulae* crassae, apice parùm bidentatae. *Maxillae* lobo interno membranaceo, externo magno valdè setigero. *Palpi maxillares* articulo ultimo securiformi. *Mentum* crateriforme. *Labium* cordatum. *Palpi labiales* breves,

articulo ultimo crasso ovali, apice subtruncato. *Antennæ* sat longæ, articulo 3^{to} vix 4^{to} longiori, 7^{mo} cæteris parùm crassiori, hoc et reliquis præcedentibus paullò latoribus. *Prothorax* rotundatus anticè et posticè subtruncatus, capite multo latior. *Elytra* brevia oblongo-ovalia, thorace latiora, convexa, punctato-striata. *Pedes* satis elongati, femoribus anticis crassis ante apicem internè dente valido curvato armatis; tibiæ anticæ ante medium paullò extus curvatæ; intermediae intus subserratæ; posticæ rectæ.

Fœmina differt capite et prothorace paullò minoribus, hoc minus rotundato, pedibus anticis brevioribus et gracilioribus, dente femorum anticorum multò minori, tibiisque anticis minus curvatis, tibiisque intermediis haud serrulatis.

MEGACANTHA TENEBROSA. *Meg. nigra subnitida punctata, elytris striato-punctatis, angulis humeralibus distinctis.*

Long. corp. lin. $9\frac{1}{2}$ - $10\frac{1}{2}$; lat. elytr. lin. $4\frac{3}{4}$.

Hab. Ashantee. In mus. D. Hope.

Caput nigrum punctatum, clypeus brevis vix e vertice separatus. *Oculi* intus subapproximati, lunulâ tenui lævi subnitidâ et subelevatâ interjectâ, tuberculi anteoculares magni, basin antennarum tegentes. *Prothorax* tenuè punctatissimus lateribus rotundatis, angulis anticis acutis, posticis subacutis. *Elytra* sat profundè 8 striato-punctata; striâque alterâ valdè abbreviatâ versus scutellum; striis 4 et 5, 3 et 6, et 2 et 7, posticè conjunctis. *Pedes* et corpus infra nigra subnitida.

An *Helops dentatus*, Fab.?

Mr. Reeve then communicated to the Meeting "Descriptions of four new species of bivalve shells by Mr. Hanley."

Genus SOLEN.

SOLENI ACUMINATUS. *Sol. testâ albidâ, epidermide tenui griseo-viridescente indutâ, elongatâ, latitudine longitudinem tripliciter superante; posticè rotundatâ; anticè acuminatâ extremitate rotundatâ; marginibus arcuatis, ventrali propè in medio incurvatâ; dentibus in utraque valvâ duobus, angustis, uno valdè minore.*

Long. $\frac{3}{4}$; lat. $2\frac{3}{5}$ poll.

Hab. in flumine Hoogley, Indiarum Orientalium.

This shell, which has been found in great abundance at the mouth of the river Hoogley, is somewhat allied to the *Solen acutidens* of Broderip; it is, however, well distinguished by its anterior acumination.

Genus PSAMMOBIA.

PSAMMOBIA COSTATA. *Psam. testâ subellipticâ, anticè angulatâ; posticè breviorè angustatâ, extremitate rotundatâ; pallidâ, radiis angustis roseo-lividis ornatâ; transversim irregulariter costatâ, costis rudibus, planulatis, anticè subfurcatis; intus vel purpureâ, vel aurèâ.*

Long. 1; lat. $1\frac{3}{4}$ poll.

Hab. ad oras Novæ Zealandiæ.

The coarse and somewhat prominent ribs render this shell easily distinguishable from the rest of the *Psammobia*.

Genus CYTHEREA.

CYTHEREA EFFOSSA. *Cyth. testá ovali-subcordiformi, subæquilaterali, crassá, nitidá, convexá, transversim profundè sulcatá; sulcis subremotis, interstitiis planulatis; albido-lividá, lineis angularibus, saturatioribus, venulatá; ano impresso, lanceolato; vulvá effossá lateribus candidis, fasciis spadiceis undulatis, transversim pictá; disco interno purpureo, marginibus crenatis.*

Long. $\frac{4}{5}$; lat. $1\frac{1}{5}$ poll. Mus. Stainforth.

Hab. — ?

The very singular manner in which this and the following species are excavated on the anterior side forms their prominent and distinguishing characteristic.

CYTHEREA EXCAVATA. *Cyth. testá rotundato-ovatá, subæquilaterali, posticè expansá, anticè propter marginis ventralis obliquam curvationem angustatá; crassá, lævi, nitidá, depresso-convexá, pallidè fulvá, venis lividis angularibus, plus minusve distinctis, marmoratá; ano lanceolato; vulvá valdè excavatá, lateribus planulatis, candidis, spadiceo leviter venulatis; disco interno roseo; marginibus tenuiter crenulatis.*

Long. 1; lat. $1\frac{1}{5}$ poll. Mus. Stainforth.

Hab. — ?

This shell resembles the preceding by its anterior excavation, but differs both in shape and in the absence of the transverse grooves.

September 27, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

A letter from the Society's Corresponding Member, Dr. Cantor, was read; it is dated Calcutta, February 12, 1842, and refers to a series of shells collected by that gentleman in Chusan, and which he presents to the Society. The following list of these shells, prepared by Dr. Cantor, was laid before the Meeting:—

Helix ravida; *Clausilia pluvialis*; *C. aculeus*; *Achatina erecta*; *Planorbis papyraceus*; *P. hemisphærule*; *P. compressus*, Hutton; *Lymnæa plicatula*; *Paludina longicornis*; *P. striatula*; *P. quadrata*; *P. lecythoides*; *Melania cancellata*; *Arca galactodes*; *Modiola Senhousia*; *Anodon gibbum*; *Corbicula fuscata*; *Venus Sinensis*; *Sanguinoluria iridescens*.

Mr. Fraser, the naturalist to the Niger expedition, exhibited several new species of Quadrupeds, constituting part of his collection formed at Fernando Po; and Mr. Waterhouse, at the request of the Chairman, read his description of the new species, these having been placed in his hands for examination by Mr. Fraser.

Mr. Waterhouse first drew attention to a very interesting new genus of Rodents, which he characterized under the name

ANOMALURUS*.

Molares $\frac{4-4}{4-4}$, radicati. *Cranium* sine processu post-orbitali ossis temporalis, sed foramine antorbitali magno, partem musculi masseteris transmittente. *Palatum* anticè coarctatum, posticè emarginatum in formâ triangulari. *Cauda* modicè elongata et subfloccosa, parte basali triente subtùs scutis magnis in serie duplici longitudinalitè dispositis (singulis angulo prominente) obtectâ. *Aures* magnæ, subnudæ. *Patagium* inter artus extensum. *Rhinarium* nudum. *Pedes* subtùs nudi; ungibus falcularibus, valdè compressis; pedes antici 4-dactyli, digitis subæqualibus; postici 5-dactyli, digitis subæqualibus, interno excepto, hoc brevior.

ANOMALURUS FRASERI. *An. vellere longo, permolli; corpore supèr nigro; dorso flavescenti-fusco lavato; fronte incanesciente; corpore infrà albo, vel albido; artubus intus, patagio ad marginem et gutture fuliginoso tinctis.*

* From ἀνομος, out of law, and οὐρα, a tail. Should this have been previously used in a generic sense in Natural History, the name Aroæthrurus (from ἀρόω, to plough, and αἶθηρα, air) may be substituted.

	unc. lin.
Longitudo ab apice rostri ad caudæ basin. . . .	14 0
— caudæ	8 6
— auris	1 3
— tarsi digitorumque	2 6

Hab. Fernando Po.

Upon a cursory inspection this animal would be regarded as a species of *Pteromys*, having most of the general external characters of the members of that group; there are, however, some points of distinction between the present animal and the large Flying Squirrels, which are important; of these the most conspicuous are the extraordinary scales which cover the under side of the basal third of the tail: these scales are of a pale horn-colour, sixteen in number in one of two specimens before me, and fifteen in the other, and arranged in two longitudinal series: each scale is narrow at the base and broad at the opposite extremity, and in fact nearly of a triangular form; but as the scales on one side alternate with those of the other, no interstices are left; they not only cover the under surface of the tail, but overlap the sides; in this overlapping of the scale a ridge is formed, the extremity of which is produced into an angle; the point of the angle is directed backwards. The portion of the tail which is thus protected beneath is well clothed with fur above, but the hairs are not long, and the apical portion (which is cylindrical) is much less bushy than in the large Flying Squirrels constituting the genus *Pteromys*. The hinder feet have the heel clothed with fur, but the outer margin beneath is naked, and not densely clothed, as in *Pteromys*. The lateral flying membrane extends from the wrist to the ankle, and is supported moreover by a long cartilage in front, as in *Pteromys*; but this cartilage has its origin at the elbow-joint, and not at the wrist, as in the genus just mentioned. The interfemoral membrane extends to the heel, and is moreover attached to the sides of the tail, and when expanded forms almost a straight line.

The ears are large, much longer than broad, and naked, excepting at the base on the outer side, where they are covered with long fur, like that on the body; the naked portion has a slight flesh-like tint, but is nearly white, as are also (Mr. Fraser's notes state) the naked portions of the feet and the tip of the muzzle. The hairs of the moustaches are very numerous, and although not very thick, are unusually long. The fur is long and remarkably soft, and the hairs of which it is composed are all of one kind; that is, there are no longer interspersed stronger hairs, such as we usually find in the fur of the Rodents; the fur on the upper parts is sooty black, but, excepting on the membranes, most of the hairs are rather broadly tipped with yellowish rust-colour: on the upper surface of the head the colour is replaced by grey; on the under parts of the body the fur is dirty white; the throat is blackish, and the under side of the throat is tinted with sooty grey. The under side of the membranes is sparingly clothed with hairs; towards the margin the hairs are more numerous, and of a blackish tint.

In the structure of the skull *Anomalurus* differs considerably from the known species of *Sciuridae*. All the species of the family, the skulls of which I have had an opportunity of examining (and they are numerous, embracing all the known genera and subgenera), are distinguishable by the possession of a distinct post-orbital process to the cranium; they have the palate broad, and terminating in a line with the posterior molars, or behind that line; the molars of opposite sides of the jaw are parallel, and the ant-orbital opening is small, in the form of a tube, and serves only for the transmission of the infra-orbital nerve. These characters are not found in *Anomalurus*: the post-orbital process is here reduced to a mere rudiment, being represented by an indistinct projection forming an obtuse angle: the ant-orbital opening is large, and evidently affords a passage for a portion of the masseter muscle as well as the nerve; it moreover opens directly in the bony plate which constitutes the anterior root of the zygomatic arch, and is not produced as it were into a tube, as in the typical Squirrels. The palate is narrow, and has a deep triangular emargination behind, the apex of the triangle being on a line with the hinder margin of the penultimate molar. The molar teeth converge in front, so that the space between the two foremost is scarcely equal in width to one of these teeth; the crowns of the molars of opposite sides of the upper jaw, instead of being on the same plane, or very nearly so, are directed obliquely outwards; and the masticating surface of those of the lower jaw, to meet them, incline in an opposite direction. The incisive foramina are longer than is usual in the *Sciuridae*, and encroach in a slight degree upon the maxillary bones. The nasal portion of the skull is narrower, and the nasal bones are remarkable for a deep emargination in front.

I have been led to institute a comparison between the present animal and the species of the *Sciuridae*, on account of certain points of resemblance which there exist between it and the Flying Squirrels (*Pteromys*), especially in the possession of the expanded flank and interfemoral membranes. In the almost total absence of post-orbital process, however, and in the comparatively large size of the ant-orbital opening, the *Anomalurus* evinces an approach to the *Myoxidae*; the approximation is moreover observable in the narrowness of the nasal bones and the slenderness of the zygomatic arch, these parts being compared with those corresponding in the squirrel skull.

The lower jaw is formed like that of the Squirrels, and does not present certain peculiarities observable in the *Myoxus*, viz. that of having the descending ramus perforated, its posterior angle acute, and the upper posterior angle produced.

The incisor teeth are deeper than broad, and almost flat in front.

The molars are permanently, it would appear, $\frac{4-4}{4-4}$, for in a skull of a young animal in which but three molars on either side of the jaw are protruded, there is no trace of the small anterior molar so commonly found in the Squirrels. They are very nearly equal in size, and of a quadrate form; the crown of each molar of the upper jaw

is slightly indented, both on the outer and inner side, and the posterior inner angle is somewhat produced; in the young animal it is more distinctly produced and is acute, and the outer and inner indentations are scarcely traceable. The molars of the lower jaw have each a strong indentation on the outer side. The folds of enamel cross the crowns of the molars in the transverse direction, and the spaces between the folds (four or three in number) are about equal in width to these folds. The masticating surfaces of these teeth are worn flat by usage, even in the comparatively young animal, as in other Rodents which have a large ant-orbital opening, and have not the tubercular surface such as we find in the molars of the typical Squirrels. These last-mentioned animals, it would appear, have a rotatory motion of the lower jaw, whilst the *Anomaluri* have a longitudinal, no doubt combined with the rotatory motion; and this difference is perhaps due to the action of that portion of the masseter muscle which passes through the ant-orbital opening.

The apparatus of scales, Mr. Fraser remarked, was used by the animal to support itself when resting on the trees, which it ascends with great agility. He had observed this animal dart from the top of a lofty tree to another at a considerable distance. Descending at an angle, it aimed with great nicety at the trunk of the tree on which it intended to alight, and, settling near the base, it would again ascend to travel to a third tree in the same manner; occasionally, when high up on the trunk, it would rest itself, making use of the singular apparatus of scales on the under side of the tail. The unarmed portion of the tail was then turned backwards and upwards.

Mr. Waterhouse then proceeded to characterize three new species of Squirrels from Mr. Fraser's collection, as follows:—

SCIURUS STANGERI. *Sc. pilis longis et rigidis, nigro et flavescenti-penicillatis; genis, guld, corporeque subtus pilis sparsè obtectis, his plerumque pallidis; caudâ magnâ, nigro alboque annulatâ; auribus parvulis; foramine infra-orbitali haud in canali educto.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	12	0
———— caudæ	15	0
———— tarsi digitorumque	2	8½
———— auris	0	5

Hab. in Insulâ Fernando Po.

The most striking external characters of this species consist in its large tail, which is ringed with black and white; the crispness of the fur and the seminaked condition of the under parts of the body, the sides of the face, muzzle, throat, and the inner side of the limbs:—all these parts are so sparingly clothed with hairs that the skin is visible. On the upper parts of the body there is scarcely any trace of the finer under-fur, nearly all the hairs being of the same harsh character; they are black, broadly annulated with yellowish white or rusty yellow; on the fore parts of the body the former tint prevails, but the hinder parts may be described as black, freely pencilled with bright rusty yellow; on the hind limbs this last-mentioned

colour prevails, as well as on the upper side of the tarsus. The small adpressed hairs on the sides of the face are partly black and partly yellowish white; on the chest the hairs are for the most part whitish, and on the inner side of the limbs rusty yellow; on the belly the hairs are most of them yellowish white, annulated with black. The tail is very long and bushy: measuring to the end of the hair, it exceeds the head and body in length; excepting quite at the base, where the tail is coloured like the body, all the hairs are black, broadly annulated with white, and the white on the upper surface forms bars or rings; these however become indistinct towards the apex. The ears are of moderate size and rounded. The heel is rather sparingly clothed with hair.

The skull of this animal is remarkable for its oblong-ovate form, and for having the ant-orbital foramen further back than usual; it opens indeed directly into the anterior root of the zygomatic arch, and is not in the form of a longish canal, such as we observe in other Squirrels. The nasal portion of the skull is short and broad, and the nasal bones correspond; the elongated form of the cranium is due to the greatly produced hinder portion: the antero-posterior extent of the extremely oblique bony plate forming the anterior root of the zygomatic arch is great: the post-orbital process is well-developed: the palate terminates very nearly in a line with the hinder part of the posterior molars. The incisive foramina are moderate. The auditory bullæ are rather small. The incisors are strong and very deep from front to back. The molars are small in proportion to the skull. The dimensions of the skull are,

	in. lin.
Total length	2 10
Greatest width	1 6 $\frac{1}{2}$
Width between orbits	0 10 $\frac{1}{2}$
Length from post-orbital process to occiput.	1 4
—— of palate	1 2
—— from front of the incisors to the first molar.	0 11
Longitudinal extent of the four molars.	0 6
Length of nasal bones	0 8 $\frac{3}{4}$

SCIURUS RUFO-BRACHIATUS. *Sc. pilis mediocriter longis, subrigidis, nigro et flavescenti-penicillatis; corpore subtus sordide flavo vel rufescenti-flavo; artubus infra rufis; caudâ longâ, non valde floccosâ, annulis nigris et albis, vel flavescenti-albis, ornatâ, ad basin plerumque rufescente; auribus parvulis; dentibus incisoribus longitudinaliter subsulcatis.*

	unc. lin.
Longitudo ab apice rostri ad caudæ basin.	8 6
—— caudæ	10 6
—— tarsi digitorumque	2 1 $\frac{1}{2}$
—— auris ..	0 4 $\frac{1}{2}$

Hab. in Insulâ Fernando Po.

This species approaches very nearly to the *Sciurus annulatus* of authors, but is distinguishable by its richer colouring. The general

tint of *S. annulatus* might be described as yellowish grey, whilst that of the present animal is rusty grey; and especially by the bright rust-like tint of the under side of the limbs, and the pale rust or rusty white colour of the belly. The heel is clothed with hair.

The dimensions above given being from a skin, can only be regarded as an approximation; judging from the skull, the present species must be much larger than the *Sc. annulatus*. Its form is nearly the same, but the nasal portion is narrower and more elongated, and the post-orbital processes are considerably larger in proportion. The dimensions of the skull are as follows:—

	in.	lin.
Total length.....	2	1½
Greatest width.....	1	2½
Width between orbits.....	0	8½
Length from the front of the incisors to the first molar.....	0	7¼
Length of palate.....	0	10½
Longitudinal extent of the four molars.....	0	5
Length of nasal bones.....	0	8½

SCIURUS ERYTHROGENYS. *Sc. supra rufescenti-fuscus, pilis nigro et rufescenti-penicillatis; genis rufis; guld, corpore subtus, et artubus internè-albis; caudâ quàm corpus brevior, nigra, albo-penicillatâ, pilis ad basin rufescentibus; auribus parvulis.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	8	6
———— caudæ.....	6	3
———— tarsi digitorumque.....	1	10½
———— auris.....	0	4

Hab. in Insulâ Fernando Po.

The bright rust-coloured cheeks, combined with the pure white colour of the under parts of the body and inner side of the limbs, will serve to distinguish this species. The fur is rather short and moderately soft, and on the upper parts of the body the hairs are black (inclining to greyish at the base) and broadly annulated with rich rusty yellow at or near the point. A shortish longitudinal pale mark is observable on each side of the body near the shoulders. The feet are finely pencilled with black and yellowish white. The tail is rather short and not very bushy, above black and rather sparingly pencilled with white; upon separating the hairs, however, they are found to be of a pale rust-colour near the base, and along the mesial portion of the under side the tail is of a bright rusty red colour. The tarsus is naked nearly to the heel, but on the heel are a few hairs.

Mr. Fraser's collection also contained a perfect skin of the *Antelope Ogilbii*, an animal originally described from an imperfect specimen by Mr. Waterhouse in the Society's Proceedings for May 1838, p. 60.

This animal belongs to the same division as the *A. sylvicultrix* of authors, and is apparently equal to that animal in size. As in the species just mentioned, the muzzle is naked, and the horns are placed far behind the eye; they are short, straight (or nearly so) and pointed.

Mr. Fraser's notes state that the animal is provided with a gland between the hoofs, and that the female has four teats.

The fur is short, glossy and adpressed, and of a bright rusty red colour, darkish on the back, and paler on the under parts of the body; a black mark runs along the back very nearly to the tail; this mark is broadest towards the shoulders, where its width is about an inch or rather less; over the shoulders it becomes obliterated, blending gradually into the brownish hue which covers those parts and the neck. The upper surface of the head is of a deep rusty red colour, shading into black at the tip of the muzzle; the sides of the face are yellowish fawn-colour, and the throat is whitish. The ears are of moderate size, broad and somewhat pointed; externally they are clothed with closely adpressed small hairs, which are for the most part of a black colour, but in front at the base they assume a bright rust tint; this is also the colour of the fringe of longish hairs on the anterior margin. About half-way down the fore leg and on the anterior surface some black hairs are observable, intermixed with those of the ordinary colour; these become more numerous lower down and form a mark which becomes gradually broader, and from the front to the hoof it encircles the foot; numerous white hairs are intermixed on this part, and they form a white ring next to the hoof. The hind feet are coloured in the same way.

Mr. Waterhouse then read his description of a species of Cat procured at Sierra Leone.

FELIS RUTILUS. *F. pilis brevibus adpressis; corpore suprâ ferrugineo, ad latera indistinctè maculato, maculis parvulis, subtùs albido maculis rufo-nigricantibus ornato; caudâ brevi, immaculatâ, suprâ obscurè rufâ, subtùs pallidiore.*

	unc. lin.
Longitudo corporis circiter	36 0
———— caudæ	10 0

The skin which furnishes the above characters was procured by Mr. Fraser when at Sierra Leone, and was said to be from the Mandingo country. Unfortunately, like all other skins brought from the interior for sale or barter, it is imperfect, wanting the head and lower part of the limbs. In the shortness of its tail and in its nearly uniform colouring, it approaches the Lynxes. It probably inhabits the mountains.

Imperfect skins of the *Cercopithecus Campbelli* were also procured by Mr. Fraser at the same time; they were likewise said to be from the Mandingo country.

October 11, 1842.

R. H. Solly, Esq., in the Chair.

An extract from a letter from the Society's President, the Earl of Derby, was read. It announced that his Lordship had succeeded in hatching and partially rearing two young Fire-backed Pheasants (*Euplocomus ignitus*? Auct.), and also four young Rheas. The young birds were alive and thriving at the time the letter was written, October 6th, 1842.

Mr. Gould exhibited and characterized the following thirty new species of Australian Birds:—

HIRUNDO NEOXENA. *Hir. fronte, mento, gula, et pectore ferrugineo-rubris; rectricum caudæ (rectricibus duabus intermediis exceptis), pogonio interno obliquè albo notato; corpore suprà metallicè caruleo, subtùs pallidè fuscescente.*

Forehead, chin, throat and chest rust-red; head, back of the neck, back, scapularies, wing-coverts, rump and upper tail-coverts deep steel-blue; wings and tail blackish brown; all but the two centre feathers of the latter with an oblique mark of white on the inner web; under surface very pale brown; under tail-coverts pale brown, passing into an irregular crescent-shaped mark near the extremity, and tipped with white; irides dark brown; bill and legs black.

Total length, 6 inches; bill, $\frac{1}{2}$; wing, $4\frac{5}{8}$; tail, 3; tarsi, $\frac{1}{2}$.

Hab. The whole of the southern coast of Australia and Van Diemen's Land.

Messrs. Vigors and Horsfield considered this species to be identical with the bird figured by Sparmann in the 'Museum Carlsonianum' under the name of *Hirundo Javanica*, which is there represented with a square tail, and which, if drawn correctly, is not only specifically but generically distinct. Those gentlemen likewise considered it to be identical with the *Hirondelle Orientale* of M. Temminck's 'Planches Coloriées,' but from which also I conceive it to be distinct. On the contrary, the swallow figured in Griffith's edition of Cuvier's 'Animal Kingdom' is certainly the Australian bird; but as the specific term there given had been previously employed by Sparmann, as mentioned above, the necessity of a new name for the present bird has been forced upon me; and that of *neoxena* has suggested itself as appropriate, from the circumstance of its appearance throughout the whole of the southern portions of Australia being hailed as a welcome indication of the approach of spring, and its arrival there associated with precisely the same ideas as those popularly entertained respecting our own pretty swallow in Europe. The two species are in fact beautiful representatives of each other, and assi-

milate not only in their migratory movements, but also most closely in their whole habits, actions and economy.

COLLOCALIA ARIEL. *Coll. vertice ferrugineo-rubro, dorso, plumis scapularibus, et alarum tectricibus saturatè metallico-cæruleis, uropygio fulvescenti-albo, tectricibus caudæ fuscis; corpore subtilis albo, ferrugineo tincto.*

Crown of the head rust-red; back, scapularies and wing-coverts deep steel-blue; wings and tail dark brown; rump buffy white; upper tail-coverts brown; under surface white, tinged with rust-red, particularly on the sides of the neck and flanks; the feathers of the throat with a fine line of dark brown down the centre; irides blackish brown; bill blackish grey; legs and feet olive-grey.

Total length, 4 inches; bill, $\frac{3}{8}$; wing, $3\frac{3}{4}$; tail, $1\frac{7}{8}$; tarsi, $\frac{1}{2}$.

Hab. The southern portions of Australia.

DICRURUS BRACTEATUS. *Dic. corpore suprâ et infrâ saturatè nigro; plumis capitis lunula metallico-viridi, illis corporis præsertim pectoris guttâ ejusdem splendoris, ad apicem bracteatis.*

Head, body above and below deep black; the feathers of the head with a crescent, and the feathers of the body, particularly of the breast, with a spot of deep metallic green at the tip; wings and tail deep glossy green; under wing-coverts black, tipped with white; irides brownish red; bill and feet blackish brown.

Total length, $10\frac{1}{2}$ inches; bill, $1\frac{3}{8}$; wing, 6; tail, $5\frac{1}{2}$; tarsi, $\frac{7}{8}$.

Hab. The eastern and northern coasts of Australia.

Syn. *Dicrurus baliassius*, *Vig. & Horsf.*, but not of *Lath.*

RHIPIDURA DRYAS, Gould. *Rhipi. fronte, dorso inferiore, tectricibusque caudæ ferrugineis; caudâ fusciscenti-cinerea, rectricibus duabus intermediis ad apicem obscure albo notatis, reliquis per partem apicalem tertiam albis.*

Forehead rust-red; crown of the head, back of the neck, upper part of the back and the wings olive-brown; lower part of the back and upper tail-coverts rust-red; tail brownish grey, the two centre feathers obscurely tipped with white, and the remainder white for one-third of their length from the tip; throat white; ear-coverts dark brown; chest black, the feathers being edged with white as they pass on to the abdomen, which is wholly white; flanks and under tail-coverts very faintly tinged with buff; irides blackish brown; bill black; feet dark brown.

Total length, $5\frac{7}{8}$ inches; bill, $\frac{5}{8}$; wing, $2\frac{5}{8}$; tail, $3\frac{7}{8}$; tarsi, $\frac{5}{8}$.

This species is nearly allied to *Rhipidura rufifrons*, but differs in being much smaller, in the red not extending on to the plumes and shafts of the tail-feathers, and in there being more white on their extremities.

Hab. Port Essington, north coast of Australia.

MICRÆA FLAVIGASTER. *Mic. corpore superiore fusciscenti-olivaceo; alis caudæque fuscis, colore pallidiorè plumis marginatis; gula albâ, corpore inferiore flavo.*

All the upper surface brownish olive; wings and tail brown, mar-

gined with paler brown; throat white; all the under surface yellow; irides dark brown; bill blackish brown; feet blackish grey.

Total length, $3\frac{3}{8}$ inches; bill, $\frac{5}{8}$; wing, $2\frac{7}{8}$; tail, $2\frac{1}{4}$; tarsi, $\frac{1}{2}$.

Hab. Port Essington.

GERYGONE MAGNIROSTRIS.* *Ger. corpore suprà fusco, infrà albo; primariis leviter olivaceo-marginatis; caudâ propè apicem indistinctè fuscescenti-nigro vittatâ.*

All the upper surface brown; margins of the primaries slightly tinged with olive; tail-feathers crossed near the extremity by an indistinct broad band of brownish black; all the under surface white, tinged with brownish buff; irides light brown; bill olive-brown; the base of the lower mandible pearl-white; feet greenish grey.

Total length, $3\frac{3}{4}$ inches; bill, $\frac{9}{16}$; wing, $2\frac{1}{4}$; tail, $1\frac{7}{8}$; tarsi, $\frac{5}{8}$.

Hab. Port Essington.

GERYGONE CHLORONOTUS. *Ger. capite et nuchâ fuscescenti-cinereis; dorso, alarum tectricibus, uropygio, tectricibus caudæ, remigum primorum marginibus, et per partem dimidiam basalem marginibus caudæ rectricum nitidè olivaceo-viridibus; corpore subtus, lateribus, crissoque olivaceo-flavis.*

Head and back of the neck brownish grey; back, wing-coverts, rump, upper tail-coverts, margins of the primaries, and the margins of the basal half of the tail-feathers, bright olive-green; primaries and tail-feathers brown, the latter becoming much darker towards the extremity; under surface white; sides and vent olive-yellow; irides wood-brown; upper mandible greenish grey; lower mandible white; feet blackish grey.

Total length, $3\frac{1}{2}$ inches; bill, $\frac{9}{16}$; wing, $2\frac{1}{8}$; tail, $1\frac{3}{8}$; tarsi, $\frac{5}{8}$.

Hab. Port Essington.

GERYGONE LEVIGASTER. *Ger. corpore superiore ferrugineo-fusco; inferiore albo, leviter flavido tincto.*

A narrow obscure line, commencing at the nostrils and passing over the eye, yellowish white; all the upper surface rusty brown; primaries brown, margined with lighter brown; tail whitish at the base, gradually deepening into nearly black, the lateral feather largely, and the remainder, except the two middle ones, slightly tipped with white; all the under surface white, slightly washed with yellow; irides light reddish brown; bill olive-brown; base of lower mandible light ash-grey; feet dark greenish grey.

Total length, $3\frac{3}{8}$ inches; bill, $\frac{1}{2}$; wing, 2; tail, $1\frac{1}{2}$; tarsi, $\frac{3}{4}$.

Hab. Port Essington.

For a new form, nearly allied to *Gerygone*, Mr. Gould proposed the generic name of *Smicrornis*, with the following characters:—

Gen. Char.—*Rostrum parvulum, et instar grani tritici; ferè cylindraceum; a basi incurvatum. Nares basales oblongæ, et oper-*

* *Psilopus* of the former parts of these 'Proceedings,' and for which the term *Gerygone* is now substituted, the former term having been previously employed.

culo obtectæ; ad basin rostri, pili tenuissimi admodum pauci. *Alæ* modicè longæ, *alula* brevissima, *primariæ* tertia, quarta, et quinta longissimæ, et inter se ferè æquales. *Cauda* brevis, et quadrata. *Tarsi* modici; *digiti* perbreves; *digitus* posticus cum intermedio ferè coæqualis. *Ungues* admodum adunci, et ad hærendum aptati.

SMICRORNIS FLAVESCENS. *Smic.* corpore superiore nitidè flavescenti-olivaceo, plumis capitis strigâ fuscâ ferè obsoletâ longitudinaliter notatis, corpore inferiore nitidè flavo.

All the upper surface bright yellowish olive; the feathers of the head with an indistinct line of brown down the centre; wings brown; tail brown, deepening into black near the extremity, and with a large oval spot of white on the inner web, near the tip of all but the two central feathers; all the under surface bright yellow.

Total length, $2\frac{3}{4}$ inches; bill, $\frac{5}{16}$; wing, $1\frac{7}{8}$; tail, $1\frac{1}{4}$; tarsi, $\frac{9}{16}$.

Hab. Port Essington.

PACHYCEPHALA FALCATA, Gould. *Pach.* vertice, loris, plumis auricularibus, dorso, caudæque tectricibus cinereis; gula albâ, lunulâ nigra infra circumdatâ.

Adult male.—Crown of the head, lores, ear-coverts, back and upper tail-coverts grey; wings dark brown, all the feathers margined with grey; throat white, bounded below by a distinct crescent of black; abdomen, flanks, and under tail-coverts orange-brown; tail dark brown; the basal portion of the webs edged with grey; irides reddish brown; bill black; feet blackish brown.

Total length, $5\frac{3}{4}$ inches; bill, $\frac{3}{4}$; wing, $3\frac{1}{2}$; tail, $2\frac{7}{8}$; tarsi, $\frac{3}{4}$.

Adult female.—Crown of the head and all the upper surface grey; ear-coverts brownish grey; throat buffy white, passing into light buff or fawn-colour on the chest, flanks, abdomen, and under tail-coverts; the feathers of the throat and chest with a narrow dark line down the centre; wings and tail as in the male.

Total length, $5\frac{1}{2}$ inches; bill, $\frac{5}{8}$; wing, $3\frac{1}{2}$; tail, $2\frac{3}{4}$; tarsi, $\frac{3}{4}$.

Young male.—Similar in colour to the female, but with the throat whiter and the markings on the chest much more distinct, and extending over the abdomen also.

Nearly allied to *Pachycephala pectoralis*, but differs in being rather smaller, and in having no black round the eyes or on the ear-coverts.

Hab. Port Essington.

PACHYCEPHALA MELANURA. *Pach.* capite, lunulâ pone oculos, per latera colli ductâ et pectus transeunte, caudæque nigris; gula albâ, torque nuchali, corporeque subtilis, saturatè flavis.

Head, crescent commencing behind the eye and crossing the chest, and the tail black; throat pure white; collar round the back and sides of the neck, and all the under surface very rich gamboge-yellow; upper surface rich yellowish olive; wings black; the coverts margined with yellowish olive; the primaries narrowly and the secondaries broadly margined with yellowish grey; bill and feet black; irides brown.

Total length, 6 inches; bill, $\frac{7}{8}$; wing, $3\frac{1}{4}$; tail, $2\frac{1}{2}$; tarsi, $\frac{7}{8}$.

Hab. North coast of Australia.

PACHYCEPHALA SIMPLEX. *Pach. corpore superiore fuscō, inferiore fuscescenti-albo, singulis plumis strigā fuscā ferē obsoletā longitudinaliter notatis.*

All the upper surface brown; all the under surface brownish white, with a very faint stripe of brown down the centre of each feather; irides light brown; bill and feet black.

Total length, 5 inches; bill, $\frac{5}{8}$; wing, $2\frac{7}{8}$; tail, $2\frac{3}{8}$; tarsi, $\frac{5}{8}$.

Hab. Port Essington.

Mr. Gould then mentioned, that having obtained another species of the same form as the *Acanthiza pyrrhopygia* of Messrs. Vigors and Horsfield, which latter differs considerably from the other members of that group, he proposed to form the two birds into a new genus, under the name of *Hylacola*, with the following characters:—

Genus HYLACOLA.

Gen. Char.—*Rostrum* capite brevius, compressum, ad basin æquè altum atque latum; *culmen* gradatim ad apicem mandibulæ superioris declivè; apex levitè emarginatus; *riectus* vibrissis raris instructus. *Nares* basales, oblongæ, magis grandes, et operculo tectæ. *Alæ* breves, admodum rotundatæ concavæ; *primariæ* prima, secunda et tertia, longitudine dissimili, quarta, quinta, et sexta cœquales, et longissimæ. *Cauda* magis elongata, et rotundata. *Tarsi* mediocres. *Digit*i magis elongati; externi cœquales.

Typus, *Acanthiza pyrrhopygia*, Vig. and Horsf.

HYLACOLA CAUTA. *Hyl. lineâ albâ per faciem super oculos ductâ, vertice, corporeque superiore fuscis; caudæ tectricibus crissoque pallidè castaneis; alarum tectricibus fuscis, fuscescenti-albo marginatis, primariis fuscis, pogoniis externis ad basin conspicuè albis.*

At the base of the upper mandible a line of white, which continues along the side of the face and over the eye; above this a narrow line of black; crown of the head and all the upper surface brown; upper and under tail-coverts bright chestnut; wing-coverts brown, edged with brownish white; primaries brown, with the outer web at the base white, forming a conspicuous spot in the centre of the wing; tail blackish brown, tipped with white; throat striated with black and white, produced by each feather being fringed with white, and having a strong stripe of black down the centre; flanks mottled brown and white; abdomen white; bill dark brown; irides buff-white; feet flesh-brown.

Total length, $5\frac{3}{8}$ inches; bill, $\frac{9}{16}$; wing, $2\frac{1}{8}$; tail, $2\frac{1}{2}$; tarsi, $\frac{7}{8}$.

Hab. Western Belts of the Murray in South Australia.

CINCLORAMPHUS CANTATORIS. *Cinc. corpore superiore arenaceo-fusco, colore plumarum centrali saturatiore, notâ antè oculos triangulari fuscescenti-nigrâ; guld et pectore sordidè albis, hujus*

plumis strigâ fuscâ longitudinaliter notatis, corpore inferiore pallide fusco, abdomine medio saturatè fusco.

All the upper surface sandy brown, the centres of the feathers darker; primaries and tail greyish brown, slightly margined with reddish brown; immediately before the eye a triangular spot of brownish black; throat and chest dull white, the latter with a stripe of brown down each feather; under surface light brown; in the centre of the abdomen a patch of dark brown, each feather margined with pale brown; bill and feet fleshy brown.

Total length, 8 inches; bill, $1\frac{1}{8}$; wing, $4\frac{1}{8}$; tail, $4\frac{1}{8}$; tarsi, $1\frac{1}{2}$.

Hab. South Australia.

PTILOTIS FLAVA. *Ptil. corpore superiore, alis, caudâque olivaceo-flavis; corpore inferiore lucide ejusdem coloris.*

All the upper surface, wings and tail olive-yellow; inner webs of the primaries brown; all the under surface bright olive-yellow; bill blackish brown; feet reddish flesh-brown.

Total length, $6\frac{1}{4}$ inches; bill, $\frac{7}{8}$; wing, $3\frac{1}{4}$; tail, $3\frac{1}{4}$; tarsi, $\frac{5}{4}$.

Hab. North coast of Australia.

PTILOTIS VERSICOLOR. *Ptil. corpore superiore fuscescenti-olivaceo, plumis flavescenti-olivaceo marginatis, alis caudâque subtus luteolis; strigâ superoculâ nigrâ; plumis auricularibus saturatè cinereis; strigâ infra-auriculâ nitide flavâ, guld et corpore subtus flavis, singulis plumis strigâ fuscâ longitudinaliter notatis; crisso pallidiore.*

All the upper surface brownish olive, tinged with yellowish olive on the margins of the feathers; outer webs of the primaries and tail wax-yellow; inner webs brown; under surface of the wing and tail yellowish buff; stripe over the eye to the back of the neck black; ear-coverts dark grey; below the ear-coverts a stripe of bright yellow; throat and under surface yellow, becoming paler as it approaches the vent, each feather with a stripe of brown down the centre.

Total length, 8 inches; bill, 1; wing, 4; tail, $3\frac{3}{4}$; tarsi, 1.

Hab. North coast of Australia.

PTILOTIS UNICOLOR. *Ptil. loris et orbitis saturatè fuscis; colore corporis fuscescenti-olivaceo, apud partes inferiores pallidiore; primariis clariore marginatis; humeris internis luteolis.*

Lores and orbits deep brown; all the plumage brownish olive; the under surface paler than the upper; primaries margined with brighter olive than the other parts of the body; under surface of the shoulder pale buff; irides obscure red; bill dark olive-brown; naked gape fleshy white, passing into yellow at the corner of the mouth; legs and feet light ash-grey.

Male.—Total length, 7 inches; bill, 1; wing, $3\frac{5}{8}$; tail, $3\frac{1}{4}$; tarsi, 1.

Hab. Port Essington.

The sexes are alike in colour, but the female is considerably smaller in size.

MYZOMELA OBSCURA. *Myz. colore corporis sordide fusco, apud partes inferiores pallidiore, et ad caput tincturâ vinaced.*

The whole of the plumage dull brown, with a vinous tinge on the head; paler on the under surface; irides bright red; bill dark greenish black; feet dark bluish grey; tarsi tinged with yellow.

Male.—Total length, 5 inches; bill, $\frac{3}{4}$; wing, $2\frac{5}{8}$; tail, $2\frac{1}{4}$; tarsi, $\frac{5}{8}$.

Hab. Port Essington.

The sexes differ only in the female being much smaller in size.

GLYCIPHILA FASCIATA. *Glyc. vertice fuscescenti-nigro, plumis ad apicem lunulâ parvulâ albâ ornatis; uropygio rufo tincto, faciei lateribus, gulâ et corpore subtilis albis, ab angulis oris strigâ angustâ fuscescenti-nigrâ per latera colli ductâ; pectore lineis semicircularibus fuscescenti-nigris transversim fasciato-lateribus et crisso luteolis, laterum plumis strigâ centrali fuscescenti-nigrâ longitudinaliter notatis.*

Crown of the head brownish black, with a small crescent of white at the extremity of each feather; feathers of the back very dark brown, margined with buffy brown; rump tinged with rufous; wings and tail dark brown, fringed with light brown; sides of the face, throat, and under surface white; from the angle of the mouth down the side of the neck a narrow stripe of brownish black; chest crossed by a number of semicircular brownish black fasciæ; flanks and under tail-coverts buff, the former with a stripe of brownish black down the centre; irides reddish brown; bill greenish grey; feet aurora-red.

Total length, $4\frac{3}{4}$ inches; bill, $\frac{5}{8}$; wing, $2\frac{7}{8}$; tail, $2\frac{1}{8}$; tarsi, $\frac{5}{8}$.

Hab. Port Essington.

ENTOMOPHILA? RUFOGULARIS. *Ent. capite et corpore superiore fuscis; primariis et caudæ rectricibus, externè colore cerino marginatis, gulâ ferrugined.*

Head and all the upper surface brown; wings and tail darker brown; primaries, secondaries and tail-feathers margined externally with wax-yellow; throat rust-red; sides of the head and all the under surface very pale brown; bill and feet dark purplish brown.

Total length, $4\frac{3}{4}$ inches; bill, $\frac{1}{2}$; wing, $2\frac{5}{8}$; tail, $2\frac{1}{8}$; tarsi, $\frac{5}{8}$.

Hab. North coast of Australia.

ENTOMOPHILA? ALBOGULARIS. *Ent. capite saturatè cinereo, corpore superiore fusco; alis caudæque saturatioribus; primariis, secundariis, rectricibusque caudæ per partem basalem dimidiam cerino marginatis; gulâ albâ, pectore et lateribus e rubro-luteolis; abdomine medio, et crisso albis.*

Head dark grey; all the upper surface brown; wings and tail darker brown; primaries, secondaries, and basal half of the tail-feathers margined with wax-yellow; throat pure white; chest and flanks reddish buff; centre of the abdomen and under tail-coverts white; irides bright reddish brown; bill blackish grey; feet bluish grey.

Total length, $4\frac{1}{2}$ inches; bill, $\frac{5}{8}$; wing, $2\frac{5}{8}$; tail, 2; tarsi, $\frac{7}{8}$.

The female is similar, but much less brilliant in colour than her mate.

Hab. Port Essington.

CALYPTORHYNCHUS MACRORHYNCHUS. *Cal. mas fulgidè e cæruleo-niger, rectricibus caudæ tribus externis (externæ pogonio externo excepto) ferè apud medium vittâ latâ pulchrè coccineâ fasciatis.*

Fem. a mari differt plumis cristæ, laterum capitis, tectricumque alarum flavido-guttatis, singulis plumis corporis inferioris, et præsertim pectoris fasciis nonnullis luteolis ornatis; rectricibus caudæ tribus externis subtis, crebrè et irregularitè flavido-fasciatis; supra ad basin fasciis nitidè flavis ad basin, exinde ad apicem palidè coccineis notatis.

Male.—The whole of the plumage glossy bluish black; lateral tail-feathers, except the external web of the outer one, crossed by a broad band of fine scarlet; bill horn-colour; irides blackish brown; feet mealy blackish brown.

Female.—General plumage as in the male, but with the crest-feathers, those on the sides of the face and neck, and the wing-coverts, spotted with light yellow; each feather of the under surface, but particularly the chest, crossed by several semicircular fasciæ of yellowish buff; lateral tail-feathers crossed on the under surface by numerous irregular bands of dull yellow, which are broad and freckled with black at the base of the tail, and become narrower and more irregular as they approach the tip; on the upper surface of the tail these bands are bright yellow at the base of the feathers, and gradually change into pale scarlet as they approach the tip; irides blackish brown.

Total length, 2 inches; bill, $1\frac{1}{2}$ in length and 3 in depth; wing, 16; tail, 12; tarsi, 1.

Hab. Port Essington.

CACATUA SANGUINEA. *Cac. corpore albo, plumis faciei, ad basin sanguineo-tinctis; primariis, secundariis et rectricibus caudæ, cum pogoniis internis ad basin sulphureis.*

All the plumage white; base of the feathers of the lores and sides of the face stained with patches of blood-red; base of the inner webs of the primaries, secondaries and tail-feathers fine sulphur-yellow; bill yellowish white; feet mealy brown.

Total length, 15 inches; bill, $1\frac{1}{8}$; wing, $10\frac{3}{8}$; tail, 6; tarsi, $\frac{7}{8}$.

Hab. North coast of Australia.

CLIMACTERIS MELANURA, Gould. *Clim. fronte, corpore superiore, rectricibusque caudæ ex holoserico fusciscenti-nigris; occipite et nuchâ ferrugineo-tinctis; primariis et secundariis ad apicem et basin saturatè fuscis; plumis gularibus albis nigro-marginatis; abdomine et lateribus ferrugineis; crisso nigro.*

Forehead, all the upper surface and tail-feathers velvety brownish black; the occiput and back of the neck stained with ferruginous brown; primaries and secondaries dark brown at the base and at the tip; the intermediate space buff, forming a conspicuous band across the wing when expanded; feathers of the throat white, edged all round with black, giving the throat a striated appearance; abdomen

and flanks ferruginous brown; under tail-coverts black, irregularly crossed with bars of buff; bill and feet blackish brown.

Total length, $6\frac{3}{4}$ inches; bill, $\frac{7}{8}$; wing, 4; tail, 3; tarsi, 1.

In size this species rather exceeds the *Climacteris scandens*.

Hab. The north-west coast of Australia.

From the collection of Mr. Bynoe.

PORZANA FLUMINEA. *Porz. corpore superiore olivaceo; singulis plumis strigâ centrali nigrescente, et ad marginem guttis duabus albis anticè et posticè nigro-cinctis, ornatis; facie, guld, pectore et abdomine superiore plumbeo-cinereis, abdomine imo, et lateribus cinerescenti-nigris, lineis albis angustis irregularitèr fasciatis.*

All the upper surface olive, with a broad stripe of blackish brown down the centre and two oval spots of white, bounded above and below with black on the margin of each web of every feather; primaries and secondaries brown; tail dark brown, margined with lighter brown and with an indication of white spots on the extreme edge; face, throat, chest, and upper part of the abdomen dark slate-grey; lower part of the abdomen and flanks greyish black, crossed by narrow irregular bars of white; under tail-coverts white; bill orange-red at the base, and dark olive-green for the remainder of its length; feet dark olive-green.

Total length, 7 inches; bill, $\frac{7}{8}$; wing, $3\frac{3}{4}$; tail, $1\frac{3}{4}$; tarsi, 1.

Hab. New South Wales.

PORZANA PALUSTRIS. *Porz. capite et nuchâ ferrugineo-fuscis, singulis plumis longitudinalitèr strigâ centrali nigrescenti-ornatis; plumis dorsalibus scapularibus, et secundariis fuscescenti-nigris, rufescente marginatis, et strigâ oblongâ albâ nigro interruptâ ornatis; guld, pectore, et abdomine superiore cinereis; abdomine imo et lateribus nigrescentibus lineis latis irregularibus cinereis fasciatis.*

Head and back of the neck rusty brown, with a stripe of blackish brown down the centre of each feather; feathers of the back, scapularies and secondaries brownish black margined with rusty brown, and with an oblong stripe or mark of white, interrupted in the middle with black; wing-coverts rusty brown, a few of them marked on their inner webs like the scapularies; primaries brown, two or three of the innermost with a mark or marks of white at the tip; tail dark brown, fringed with rusty brown; face, throat, chest and upper part of the abdomen grey; lower part of the abdomen and flanks blackish grey, crossed by broad irregular bands of grey; bill and feet olive-brown.

Total length, 6 inches; bill, $\frac{5}{8}$; wing, 3; tail, $1\frac{1}{2}$; tarsi, 1.

Hab. Van Diemen's Land.

STERNA VELOX. *Stern. fronte, loris, colli lateribus, et corpore inferiore albis; spatio circumoculari, occipite et nuchâ nigris; corpore superiore, alis, caudâque bellè cinereis.*

Forehead, lores, sides of the neck, and all the under surface white; space surrounding the eye, occiput, and back of the neck black; all

the upper surface, wings and tail delicate grey; outer web of the external quill greyish black; shafts of all the primaries white; irides blackish brown; bill black.

Total length, 13 inches; bill, $2\frac{1}{8}$; wing, $9\frac{3}{4}$; tail, $6\frac{1}{4}$; tarsi, $\frac{3}{4}$.

Hab. Bass's Straits.

HYDROCHELIDON FLUVIATILIS. *Hyd. fronte, vertice, et nuchâ nigris; corpore superiore, alis caudâque pallidè cinereis; facie et gula albis, hoc colore gradatim ad pectus cinerescente, et hoc ad abdomen necnon ad latera nigrescente.*

Forehead, crown and nape deep black; all the upper surface, wings and tail light grey; sides of the face and the throat white, gradually deepening into grey on the chest, and the grey into black on the abdomen and flanks; under surface of the shoulder and under tail-coverts white; irides black; bill blood-red; feet light blood-red.

Total length, $9\frac{3}{4}$ inches; bill, $1\frac{5}{8}$; wing, $8\frac{3}{4}$; tail, $3\frac{1}{4}$; tarsi, $\frac{7}{8}$.

Hab. Rivers and lakes of the interior of New South Wales.

THALASSEUS TORRESII. *Thal. fronte, facie, et collo dorso superiore, partibusque inferioribus lucidè albis; plumis verticis et illis oculos circumdantibus albis, gutta parvula centrali nigra notatis; occipite et nuchâ nigerrimis; dorso alisque saturatè cinereis, caudâ pallidè cinereâ.*

Forehead, sides of the face and neck, upper part of the back and all the under surface silky white; feathers of the crown and surrounding the eye white, with a minute spot of black in the centre of each; occiput and back of the neck black; back and wings deep grey; tail grey; primaries greyish black, broadly margined on their inner web with white; the shafts white; irides dark brown; bill ochre-yellow; feet blackish grey.

Total length, $13\frac{1}{2}$ inches; bill, $2\frac{5}{8}$; wing, $11\frac{1}{2}$; tail, $4\frac{3}{4}$; tarsi, 1.

Hab. Port Essington.

Nearly allied to *S. poliocerca*, but much smaller in size.

STERNULA NEREIS. *Stern. vertice et nuchâ nigris, hoc colore oculos cingente maculamque anteriorem efficiente, ut non in frontem ducto; fronte albo; dorso alisque bellè ex argenteo-cinereis; corpore inferiore, uropygio et caudâ albis.*

Crown of the head and back of the neck black, which colour extends round the eye, and is continued in the form of a spot before that organ; but this colour does not extend on to the forehead, which is white; back and wings delicate silvery grey; the outer web of the external primary dark grey at the base, gradually passing into grey towards the tip; all the under surface, rump and tail pure white; irides black; bill, tongue and feet rich orange-yellow.

Total length, $10\frac{1}{2}$ inches; bill, $1\frac{5}{8}$; wing, $7\frac{1}{2}$; tail, $4\frac{1}{4}$; tarsi, $\frac{9}{16}$.

Hab. Bass's Straits.

A paper, "On the Blood-corpuscles of some of the *Struthionidæ*," by George Gulliver, Esq., was then read.

I had lately an opportunity of examining the blood of a young

Ostrich, killed by accident in the Society's menagerie. The following measurements of the corpuscles are expressed in vulgar fractions of an English inch :—

Ostrich (*Struthio Camelus*, Linn.).

Length of the discs.		Breadth of the discs.	
1-1690	} Common sizes.	1-3000	* Common size.
1-1714			
1-2000	Small size.	1-4000	Small size.
1-1333	Large size.	1-2400	Large size.
1-1649	Average.	1-3000	Average.

Thickness of the discs.

1-9166

Dimensions of the nuclei, exposed by dilute acetic acid.

Length.	Breadth.
1-3200	1-9166

Diameter of the pale globules of the blood.

1-3329

I have given several measurements of the blood-discs of the Emu and of the Rhea in the 'Appendix to Gerber's Anatomy,' p. 77, from which the following averages are taken :—

Emu (*Dromaius Nova-Hollandia*, Vieill.).

Length.	Breadth.
1-1690	1-3031

American Ostrich (*Rhea Americana*, Briss.).

Length.	Breadth.
1-1898	1-3273

A comparison of these measurements will show that the blood-discs of the common Ostrich are slightly larger than those of the Emu and of the Rhea.

Mr. Fraser laid before the Meeting some new species of Birds, constituting part of his collection formed at Fernando Po, and characterized them as follows :—

PLATYSTEIRA CASTANEA. *Platys. vertice genisque cinereis, mento albo; dorso, alis supernè, gulâ et pectore castaneis; abdomine albo, appendiculis carnosus circum oculos rubris; rostro nigro iridibus rufescenti-fuscis; tarsis cæruleo-purpurescenibus.*

Inter sexus haud coloris diversitas.

Long. tot. $3\frac{5}{10}$ unc.; rostri, $\frac{6}{10}$; alæ, $2\frac{2}{10}$; caudæ, $\frac{8}{10}$; tarsi, $\frac{5}{10}$.

Hab. Clarence, Fernando Po.

Found among the branches of the naked trees in June, sometimes in pairs; they are short and thick in form, the feathering being of downy nature. Its note is short.

This bird differs from Jardine and Selby's *Platyrhynchus Desmarestii*, Ill. Orn., vol. i. pl. 9. fig. 2, in having the chestnut back and wings and the short black tail.

PLATYSTEIRA LEUCOPYGIALIS. *Platys. (mas) capite, genis, collo, dorso, alis, caudâ et vittâ latâ pectorali, sic et femoribus e caruleo nigris, uropygio, gulâ et abdomine albis.*

Long. tot. 4 unc. ; rostri, $\frac{6}{10}$; alæ, $2\frac{2}{10}$; caudæ, $\frac{9}{10}$; tarsi, $\frac{6}{10}$.

Hab. Clarence, Fernando Po.

Found in the same situations as *P. castanea*.

Fleshy appendages around the eye, red ; irides, red hazel ; bill, black ; legs, purplish : the gizzard contained insects.

This bird differs from Jardine and Selby's *Platyrhynchus collaris*, Ill. Orn., vol. i. pl. 9. fig. 1, in having a white rump, the wings entirely black, the band across the chest much broader, and the fleshy appendage around the eye red.

PLOCEUS COLLARIS. *Ploc. vertice, capitis lateribus, et mento, nigris, torque collari lato, castaneo ; rostro nigro, tarsis fuscescentibus, reliquis partibus aurantiaco, olivaceo et fuscescente variegatis, ferè ut in Ploceo textore (vide Ploceus Textor, Swains.).*

Long. tot. $7\frac{5}{10}$ unc. ; rostri, $1\frac{2}{10}$; alæ, 4 ; caudæ, $3\frac{1}{2}$; tarsi, $1\frac{1}{10}$.

Hab. apud Insulam St. Thomas, Afric. occid.

This bird differs from *P. textor* in being of a greater size, in having the chestnut collar *encircling* the neck, and the general colouring of the body being less vivid.

EUPLECTES RUFOVELATUS. *Euplec. (mas) vertice et nuchâ, nitidè rubris, colore rubro in latera colli ducto ; corpore in toto nigro, iridibus e corylo rubris, tarsis et rostro nigris.*

Long. tot. 7 unc. ; rostri, 1 ; alæ, 4 ; caudæ, $2\frac{5}{10}$; tarsi, 1.

Hab. Clarence, Fernando Po.

A very good songster. These birds, although in deep moult (in June), appeared to be pairing. One specimen was shot from the top of a very lofty tree, the others much nearer the ground. In an apparently young male the black extends across the forehead.

October 25, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

Mr. Yarrell laid on the table, and called the attention of the Members to the seventh part of MM. Ekstrom and Sundervall's work on the Fishes of Scandinavia.

Prof. Owen exhibited a specimen of the Pearly Nautilus (*Nautilus Pompilius*), animal and shell, obtained by Capt. E. Belcher, R.N., at Amboina. Prof. Owen alluded to the fact of the specimen described by him in 1832 having been detached from the shell, which was destroyed in its capture, and to the analogies which had guided him in determining the position in which he had restored the soft parts to the shell, and figured them, *in situ*, in his memoir. Objections had been made to this restoration by Mr. Gray* and by Dr. Grant† and De Blainville‡, who were led by other analogies to believe that the upper or outer lip of the shell must have crossed the back of the head, instead of crossing the opposite side or funnel, as represented by Mr. Owen. M. Valenciennes, who had subsequently received the soft parts of a *Nautilus*, had adopted the position assigned to them in the shell by Mr. Owen.

The present example, in which the animal had been restored by Capt. Belcher to its shell in precisely the same position in which it was received by him, when recent, closely agreed with the description and figure in Prof. Owen's work§. The involuted spire of the shell is covered by the dorsal fold of the mantle, and is lodged in the concavity at the back of the muscular plate above the head. The funnel rests upon the outer wall of the large chamber containing the animal.

Capt. Belcher has signified his intention to present the specimen to the Royal College of Surgeons, when the requisite investigations into other doubtful or mooted points in the organization of the Nautilus will be made.

A paper by G. B. Sowerby, Esq., Jun., containing descriptions of two new species of shells belonging to the genus *Strombus*, was then read. The specimens were collected by the Society's Corresponding Member, H. Cuming, Esq., in the Philippine Islands, and exhibited by that gentleman to the Meeting.

STROMBUS CRISPATUS, Sow. Jun., Thes. Conch. part i. pl. 8. f. 62, 63. *Str. testâ turrilatâ, fusiformi, concentricè plicatâ, spiraliter*

* Phil. Trans. 1833, p. 774.

† Lancet, Dec. 28, 1833, pp. 506, 509.

‡ Nouvelles Animales du Muséum, tom. iii. p. 7.

§ Memoir on the *Nautilus Pompilius*, 4to, 1832; published by the Royal College of Surgeons.

striatâ ; aperturâ ovali, posticè in canalem brevem crispata desinente ; anticè canali brevi rostratâ ; labio externo crasso, crenulato ; labio interno crasso ; operculo lateraliter serrato.

Long. 1.5 ; lat. 0.40 poll.

Hab. Ins. Luzon, Panay, et Bureas, Philippinarum. H. Cuming legit.

A finely sculptured species resembling the well-known *Str. fissurella*, but rather more ventricose, with the edges of the posterior canal free, rather short, and coiled at the extremity. The colour is pale straw, with three brown bands across the body whorl.

STROMBUS BULBULUS, Sow. Jun., Thes. Conch. part i. pl. 9. f. 81, 82, 83. *Str. testâ ovali oblongâ, lævi, spirâ brevi ; anfractu ultimo anticè obliquè truncato ; aperturâ internè usque ad marginem striatâ ; labio externo vix expanso, paululum incrassato ; sinu antico invalido ; labio interno valido.*

Long. 1.45 ; lat. 0.60 poll.

Hab. Ins. Philippinæ. H. Cuming legit.

This species differs from *S. Terebellatus* in being more ventricose, in having the striæ in the aperture extended to the outer margin, and in having the inner lip more distinct.

Mr. Fraser communicated to the Meeting the following descriptions of new species of Birds, constituting part of the collection he had formed in the Niger expedition :—

Pelecanus rufescens, Gmel., vol. i. part 2. p. 571. sp. 13 ; Lath.

Gen. Hist., vol. x. p. 404. sp. 8 ; Rüpp. Atlas, vol. ii. taf. 21.

This specimen was killed at Egga, in which place it was seen in large flocks in the month of October. This was the highest point to which the Niger expedition ascended. The specimen in question was killed by the late W. C. Willie, Esq., mate of H.M.S.V. Albert, and presented to Mr. Fraser by Lieut. J. W. Fairholme, R.N., of the same expedition.

SYLVIA BADICEPS. *Sylv. (mas) vertice cinnamomino, plumis auricularibus et corpore superiore cinereis ; alis caudâque cinereo-fuscis ; genis gulâ, tectricibusque alarum inferioribus albis ; fasciâ pectorali nigrâ ; corpore inferiore cinereo, apud medium pallidiore. Iridibus e corylo-fuscis tarsis flavis.*

Long. tot. $3\frac{1}{2}$ unc ; rostri, $6\frac{2}{12}$; alæ, $2\frac{2}{12}$; caudæ, $1\frac{6}{12}$; tarsi, $\frac{3}{12}$.

Hab. Clarence, Fernando Po.

A small beetle was found in the stomach.

COCCOTHRAUSTES OLIVACEUS. *Coccoth. capite, collo, pectore, dorso, alarum tectricibus, corporisque lateribus saturatè olivaceo-viridibus ; hoc colore ad uropygium, femora et caudam, tectricibus alarum inferioribus, secundariis, reetricumque caudæ apicibus flavis ; primariis nigris, ad apicem flavescenti-albis ; secundariis in mediâ parte nigris, ad marginem internum albis, ad apicem flavescentibus ; rostro tarsisque flavis.*

Long. tot. $7\frac{1}{4}$ unc. ; rostri, $\frac{1}{2}$; alæ, $2\frac{5}{4}$; caudæ, 2 ; tarsi, $\frac{3}{12}$.

Hab. Clarence, Fernando Po.

NIGRITA FUSCONOTUS. *Nigr. capite, collo, tectricibus caudæ, sic et rectricibus nitidè nigris; dorso, et plumis scapularibus cinereo-fuscis; alis nigrescentibus; corpore inferiore sordidè albo, rostro tarsisque nigris, iridibus e corylo-fuscis.*

Long. tot. $4\frac{1}{4}$ unc.; rostri, $\frac{1}{2}$; alæ, $2\frac{1}{4}$; caudæ, 2; tarsi, $\frac{1}{2}$.

Hab. Clarence, Fernando Po.

Mr. Fraser stated it as his opinion that the bird above described belonged to the *Fringillidæ*. It certainly appertains to the genus characterized by Mr. Strickland in the 'Proceedings' for April 1841, p. 30, under the title *Æthiops*. This genus was founded upon a bird (*Æthiops canicapillus*) also from Fernando Po, specimens of which Mr. Fraser had obtained and exhibited to the Meeting. Finding the generic name *Æthiops* had been previously used for a genus of Monkeys, Mr. Fraser had been requested by Mr. Strickland to substitute for it the new generic title *Nigrita*. The species described by the gentleman last mentioned will therefore stand as *Nigrita canicapillus*, Strickl.

AMADINA POENSIS. *Amad. nitidè nigra, primariis guttatis, secundariis uropygio, plumisque lateribus albo-fasciatis; abdomine, tectricibus alarum inferioribus, crissoque albis; iridibus e corylo-fuscis; rostro cæruleo; tarsis nigris.*

Long. tot. 4 unc.; rostri, $\frac{3}{8}$; alæ, 2; caudæ, $1\frac{1}{2}$; tarsi, $\frac{1}{2}$.

Hab. Clarence, Fernando Po.

Very common about Clarence, in flocks of about fifty; their note is 'tweet-tweet.' The young have a brownish cast; they feed entirely upon seeds of the three-forked grass. The sexes do not differ.

AMADINA BICOLOR. *Amad. (mas) corpore superiore, pectore, et lateribus nigris; abdomine, tectricibus alarum inferioribus, crissoque albis; rostro cæruleo; tarsis nigris.*

Fem. vel Jun.: colore fusco, fronte genis, gulæque nigrescentibus; lateribus et uropygio indistinctè albo-fasciatis.

Long. tot. 4 unc.; rostri, $\frac{3}{8}$; alæ, 2; caudæ, $1\frac{1}{2}$; tarsi, $\frac{1}{2}$.

Hab. apud promontorium Cape Palmas dictum.

A third specimen, which is smaller, is entirely brown, without any indication of the white marks.

Common in the roofs of the huts belonging to the fish-men of Cape Palmas, in which situation they breed and commit much mischief, like our domestic sparrow (*Pyrgita domestica*, Cuv.). The native name is *Saybue*.

This differs from *Amadina Poensis* in the absence, in the adult, of the white markings on the wings, rump, and sides.

Mr. Waterhouse exhibited and described two new species of Mouse, one collected in the Philippine Islands by H. Cuming, Esq., and the other forming part of Mr. Gould's Australian collection.

MUS CASTANEUS. *Mus intensè castaneus, corpore subtùs pallidiore; caudâ corpore cum capite longiore; auribus mediocribus.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin. . . .	2	7
————— ad basin auris	0	8
————— <i>tarsi digitorumque</i>	0	7 $\frac{1}{2}$
————— <i>auris</i>	0	4 $\frac{1}{2}$
————— <i>caudæ</i>	3	0

Hab. ad Insulas Philippinarum.

This little mouse is remarkable for its nearly uniform deep and rich chestnut-brown colour, at least such is the tint it presents in spirits; the under parts of the body are rather paler than the upper; the feet and tail are uniform in hue with the body. Compared with the common mouse (*M. musculus*), it differs in being smaller, in having the rostrum more slender, and the tail proportionately longer.

MUS NOVÆ-HOLLANDIÆ. *Mus suprà canus flavescens-lavatus; corpore subtùs pedibusque albis; auribus mediocribus; caudâ quoad longitudinem corpus ferè æquante.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin. . . .	3	0
————— <i>caudæ, circiter</i>	2	0
————— <i>tarsi digitorumque</i>	0	9 $\frac{1}{4}$

Hab. New South Wales.

This mouse was found, together with two young specimens, under a large slab of bark at Yarrundi, Upper Hunter, New South Wales. In size and colouring it approaches most nearly to the *Mus sylvaticus*, but its tail is considerably shorter than in that animal. In the form of the skull the present species also approaches the *M. sylvaticus*, but the nasal portion of the cranium is shorter; the molar teeth are of the same structure, but apparently rather larger in proportion. The fur is rather long and very soft; on the upper parts the hairs are of a deep grey colour, tipped with brownish yellow; on the belly the hairs are of a less deep grey colour next the skin, and white externally. The tarsi are rather long and slender. The tail is white beneath and dusky above.

November 8, 1842.

R. C. Griffith, Esq., in the Chair.

An extract of a letter from the Society's President, the Earl of Derby, was read. His Lordship observes, with reference to some young Rheas hatched in the menagerie, that the eggs were laid in one of his Lordship's paddocks, and were collected into a nest by the male bird, who sat upon them very perseveringly until the keeper, thinking the spot selected was too exposed, removed the eggs and placed them under some Turkeys. They were ultimately, however, placed in Mr. Appleyard's hatching apparatus, and in about a week or ten days were hatched. The letter moreover announces the safe arrival of three Elands (*Antilope Oreas*, Pall.) in his Lordship's menagerie.

A memoir on the anatomy of a species of *Calyptrea* with a ventral shelly valve (*Lithedaphus longirostris*, Ow.), by Prof. Owen, was then read. The normal valve secreted by the *Lithedaphus* resembles a *Calyptrea*, and indeed is possibly a variety of the *Calyptrea equestris* of authors; but the animal is inclosed, like the Acephalous Mollusks, in a bivalve shell. The additional plate, in the present instance, Professor Owen shows to be connected with a modification in the organization of the animal which establishes its claim to a subgeneric distinction among the *Calyptreidae*. The specimens dissected were collected by H. Cuming, Esq. in the Philippine Islands, and the circumstances connected with this discovery are recorded by that gentleman in the 'Conchologia Systematica' of Mr. L. Reeve (vol. ii. p. 31).

"*Lithedaphus* differs from all previously described *Calyptreidae* in some well-marked external characters of its soft parts. The head, instead of being short, broad and flat, is long and subcylindrical; the part anterior to the tentacles being produced in the form of a proboscis, equalling in length the whole body behind it, and terminated by a clavate extremity. The tentacles or antennae are of proportional length, reaching, in some specimens, to the beginning of the terminal expansion of the proboscis. The second external character is a moderately long subcompressed process, projecting forwards between the head and the anterior margin of the foot, like a second head, but consisting only of a soft duplicature of the mantle, with muscular fibres for protraction and retraction. In some specimens the apex of this process was expanded and a little produced on each side.

"The foot, in the specimens examined, was much smaller in proportion than in *Calyptrea* or *Calypeopsis*; it presents a subcircular form, as in *Cal. Sinensis*, but only equals half the diameter of the

entire body* ; its whole margin is free, not produced anteriorly into lobes, as in *Calypeopsis*. The dorsal surface of the mantle is impressed with a deep horse-shoe fissure, receiving the internal plate of the upper shell. The aperture of the branchial chamber extends transversely across the back of the head, but conducts to a cavity of unusually small extent. The contained breathing organs differ not merely in relative size, but likewise very remarkably in structure, from the previously dissected *Calyptæidæ*. In these the branchiæ consist of a single series of simple, elongated, close-set and very numerous filaments, extending along the left side of the body in *Calyptæa Sinensis*, and making the tour of the mantle in the *Calypeopsis*. In *Lithedaphus* the branchiæ consist of two short parallel rows of conical, subcompressed, plicated vascular processes, twelve to fourteen in each row, and limited, like the branchial cavity, to the anterior part of the dorsal aspect of the body. The heart, lodged in a wide pericardium, and consisting of a large auricle with thin, sub-transparent walls, and a small, opaque, conical ventricle, is situated at the left extremity of the branchial chamber, receiving the branchial veins, and sending its largest artery to the ovary, which, in the specimen dissected, formed the left portion of the visceral mass. The oviduct, at first slender and convoluted, expands on the right side, where it is disposed in three long folds, which were laden with unusually large elliptical ova. At its termination, close to the branchial orifice, there is an oval mucous gland, and a short conical filament projects from the inner surface of the mantle. The proboscis is surrounded by a thick muscular tunic, inclosing a long, rasp-like, horny tongue, and at its base are two simple salivary follicles. The œsophagus expands into a small stomach, imbedded in a follicular liver. The intestinal canal is more complicated than in *Calyptæa* or *Calypeopsis* ; it bends towards the left side, and there forms a small mass of double spiral coils, five or six in number, from which the rectum is continued along the floor of the branchial chamber, in the interspace of the gills, to the outlet of that chamber on the right side of the neck.

“The nervous system is chiefly distinguished from that of the *Calypeopsis* by the larger relative size and closer approximation of the supra-œsophageal ganglions, which here equal the inferior masses. Besides the chords connecting the upper with the lower ganglions, the upper ganglions give off each three nerves : the largest runs forward in a zigzag course to the clavate mouth ; the second supplies

* It is here described as contracted in specimens preserved in spirit, the specimens of *Calyptæa* and *Calypeopsis* compared with it being in the same state. It is, doubtless, expanded in the living animal, as a thin, muscular and secreting disk over the basal plate. Much sharp criticism has been expended on the genus *Gastroplox*, De Blainville. It was founded in error, no doubt ; but future conchologists, who may be tempted to cast a reflection on its author, should remember that he has rendered services to Conchology such as few can hope to rival, and will do well to bear in mind, that the secretion of a shelly valve by the foot of a gastropod is not only a possibility, but is a reality in nature.

the substance of the tentacle; the third, a slender nerve, goes to the minute eye-speck on the outer side of the base of the tentacle. The wavy disposition of these nerves, especially of the rostral pair, clearly indicates a provision for considerable elongation of the parts which they supply.

"Thus the genus *Lithedaphus* differs from the other known forms of the *Calyptræidæ* in the smaller development of its locomotive and respiratory organs, and in the greater development of the organs for the prehension and assimilation of food.

"Probably no oyster, cemented to its native rock, is more fettered in its movements than this highly developed gastropod, to which, however, a voluntary detachment of the foot from the gastric plate may be possible. M. Dufo however testifies that the only movement he was able to recognise in his *Calyptræa Roissii* was an elevation of the anterior part of the shell, and a corresponding separation of it from the supporting plate beneath.

"The circumstances under which Mr. Cuming discovered his specimens would hardly be consistent with a greater extent of motion. The foot, therefore, whose normal functions as an instrument for traversing space must be restricted to the early age of the *Lithedaphus*, may well offer diminished proportions when the animal has chosen a site for the deposition of its ventral plate and has taken up a fixed abode. Muscular action being thenceforward much restricted, the necessity for extensive respiration is in the same degree abolished. The compensation for this abrogation of the power of moving about in quest of food is obviously the great development of the proboscidi-form head, which, when outstretched in the living mollusk, must appear like some worm moving to and fro from between the valves of the shell. The tactile organs of sense are co-extended with the prehensile organ; but the eyes, so useful to the young wandering mollusk, have much shrunk in the sedentary aged; and the complete elaboration of whatever nutriment may be introduced into the system has been provided for by the long and convoluted alimentary canal.

"These facts in the anatomy of the *Lithedaphus*, and their harmonious adjustment to its peculiar condition as a sessile gastropod inclosed in a bivalve shell, leave scarcely any doubt as to this state, strange and anomalous though it may seem, being essential to its nature and of original design.

"For assuming that the secretion of a ventral plate may be excited by some accidental position of an individual of a species not commonly possessing such plate, it would be an extreme hypothesis to attribute to the consequent abrogation of the locomotive power a gradual and progressive elongation of the head, during successive endeavours on the part of the imprisoned mollusk to attain whatever food might come within its reach.

"And admitting that, the supplies of food being casual and scanty, the nutriment would require to be longer retained and more completely assimilated, to conclude that the alimentary canal thereupon acquired additional convolutions, would be still more hazardous. But when we find that, the demands upon the respiratory actions

being much diminished after the loss of locomotion, the branchial apparatus does not merely present an atrophied state of its usual structure in the free *Calyptraïda*, but a different condition of that structure,—two very short gills replacing one very extensive one, and the form of the branchial filaments being quite different,—the conclusion seems unavoidable, that the *Lithedaphus* is a good and constant genus, created with reference to that peculiar mode of life to which its bivalve shell and other generic characters as a *Calyptraïdan* are correlated."

The next paper read was also from Prof. Owen, and contains an account of the anatomy of the *Pholadomya candida*. The genus *Pholadomya* was founded by G. B. Sowerby, upon certain peculiarities observable in the structure of a shell which in some of its characters approaches the genera *Solen*, *Pholas*, and *Mya*. The animal exhibits the ordinary characters of the *Acephala inclusa* of Cuvier, being everywhere shut up in a mantle which gives issue only to the siphonic tube and the foot; it presents, however, in addition to the pedal and the two siphonic apertures, a fourth orifice, at the under part of the siphon, which is of small size and circular form. This orifice alone, observes Prof. Owen, is sufficient to distinguish the present mollusk from any known genus of the *Inclusa*. It would seem to be an inlet for respiratory currents, supplementary to the ordinary ventral siphon. The animal, compared with that of the *Panopæa australis*, the characters of which are detailed by M. Valenciennes, is distinguishable not only by an accessory bifurcate foot and valvular aperture, but by its undivided branchiæ and some other less marked characters; nevertheless the affinity to *Panopæa*, as indicated by the hinge of the shell, is illustrated by a closer general resemblance of its soft parts to that genus than to *Mya*, *Solen*, or *Pholas*. These two papers, from the pen of Prof. Owen, and of which the above is a brief abstract, are illustrated with beautifully executed drawings.

Dr. Pfeiffer's descriptions of new species of Shells collected by H. Cuming, Esq. in the Philippine Islands, were then read.

HELIX CROMYODES. *Hel. testâ imperforatâ, depresso-globosâ, tenuissimâ, pellucidâ, olivaceo-fulvâ, apice violaceâ; anfractibus 4 planiusculis, ultimo magno, medio fasciâ latâ albâ cingulato et epidermide tenuissimâ cinerascete fasciatim ornato; columellâ perobliquâ, latâ, albâ; aperturâ lunato-ovalî; peristomate simplici, expanso, margine rufo-violascente.*

Diam. $1\frac{1}{2}$ poll.; altit. $10\frac{1}{2}$ lin.

Hab. Cagayan, province Misamis of the island Mindanao. Found on leaves of trees.

HELIX LANGUIDA. *Hel. testâ imperforatâ, globosâ, tenuiusculâ, regulariter et confertim obliquè striatâ, apice obtuso lutescente, anfractu ultimo rufo, epidermide hydrophand cinerascete indutâ, albo-lineolatâ, basi nudo, nitido; suturâ lineâ fuscâ nitidâ, notatâ; anfractibus $4\frac{1}{2}$ convexiusculis; columellâ verticali, albo-callosâ; aperturâ subovalî; peristomate ?*

Diam. et altit. 15 lin.

Two specimens only were found, not yet perfect, on leaves of palms in the island of Siquijor. These resemble some of the varieties of *Bulimus metaformis*, but are more globular.

HELIX BULLA, Pf. an *Nanina*? *Hel. testâ subperforatâ, globoso-depressâ, tenuissimâ, pellucidâ, striis confertis spiralibus et obliquis minutissimè decussatâ, subcarinatâ, pallidè fulvâ, ad carinam rufo-cingulatâ; suturâ vix impressâ; spirâ parùm exsertâ; anfractibus 4 planiusculis; aperturâ lunato-rotundatâ, intùs margaritaceâ, unifasciatâ; peristomate simplici, margine supero introrsum flexo, columellari vix expanso.*

Diam. 1.60; altit. 0.90 poll.

Hab. Provincia Albay insulæ Luçon.

In form it resembles *Nanina bistrialis*, Beck.

HELIX PHLOIODES. *Hel. testâ imperforatâ, depressâ, solidâ, sub epidermide corticinâ (strigis saturationibus variegatâ), nitidè nigricanti-rufâ; spirâ subplanulatâ; suturâ profundâ; anfractibus 4½ convexis; columellâ subrectâ, perobliquâ, subexcavatâ; aperturâ latè lunari, intùs lividâ; peristomate incrassato, reflexo, fusco.*

Diam. 14½; altit. 9 lin.

Hab. Argao (island of Zebu): on leaves of trees.

HELIX TEPHRODES. *Hel. testâ imperforatâ, subglobosâ, solidâ, ponderosâ, supernè rufâ, strigis latis epidermidis cinereæ hydrophanæ ferè obductâ, basi stramineâ, rufo-fasciatâ; anfractibus 4½ convexis, supremis depressis, denudatis, rufescentibus; columellâ latâ, albâ, subarcuatâ; aperturâ lunato-orbiculari, intùs albâ; peristomate simplici, reflexo.*

Diam. 19; altit. 15½ lin.

Hab. Sual (province of Pangasinan, Luçon): on leaves of bushes.

HELIX UNICA. *Hel. testâ imperforatâ, globosâ, solidiusculâ, obliquè striatulâ, albidâ; suturâ profundâ; anfractibus 5½ inflatis, supremis planiusculis; columellâ profundè intrante, arcuatâ, subcanaliculatâ; aperturâ perobliquâ, suborbiculari, intùs albâ; peristomate latè expanso, basi incrassato, intùs fulvido, marginibus approximatis.*

Diam. 19; altit. 14½ lin.

Hab. Samboanga, of the island of Mindanao.

This species, of which no more than one specimen was found, is very similar to *Hel. mammilla*, figured by Férussac and by Quoy and Gaimard, but the shell is almost smooth and quite imperforated.

BULIMUS COCHLIODES. *Bul. testâ imperforatâ, turritâ, solidâ, obliquè irregulariter striatâ, apice obtusiusculâ, albidâ; suturâ impressâ; anfractibus 9 planiusculis; ultimo ¼ longitudinis æquante; columellâ subincrassatâ; aperturâ oblongo-ovali; peristomate simplici, recto.*

Long. 2 poll.; diam. 6 lin.

One specimen was found at the island of Cuyo.

BULIMUS CUYOENSIS. *Bul. testâ subperforatâ, ovato-pyramidatâ, glabriusculâ, nitidâ, cinnamomeo-fulvâ, strigis flexuosis pallidioribus et fasciâ unicâ rufescente ornatâ; suturâ lævi; anfractibus $5\frac{1}{2}$ planiusculis, ultimo $\frac{1}{3}$ longitudinis vix superante; columellâ brevi, incrassatâ, latè reflexâ; aperturâ ovali; peristomate tenui, parùm expanso.*

Long. 15; diam. $7\frac{1}{2}$ lin.

Hab. Island of Cuyo. One specimen was found, on leaves of trees.

BULIMUS EFFUSUS. *Bul. testâ imperforatâ, ovatâ, solidiusculâ, obliquè minutissimè striatâ, nitidâ, albâ; anfractibus 5 convexiusculis, ultimo spiram vix æquante; columellâ obliquâ, dilatatâ; aperturâ perobliquâ, lunato-ovalî; peristomate simplici, valdè expanso.*

Long. $19\frac{1}{2}$; diam. 14 lin.

Hab. Island of Tablas.

β . *Anfractu ultimo subtùs fasciâ 1 fulvâ ornato.*

This species resembles somewhat the *Bul. Cumingi*, but it differs in having the shell more solid, the aperture more oblique, the columella oblique and simple, and the last whorl shorter.

BULIMUS MACROSTOMA. *Bul. testâ imperforatâ, ovatâ, solidiusculâ, rufo-nigricante, apice pallidiorè, epidermide hydrophanâ fuscâ indutâ, lineis nigris circumdatâ; anfractibus 6 convexiusculis, ultimo spiram subæquante; columellâ verticali, dilatatâ, medio subincrassatâ; aperturâ latâ, lunato-ovalî, intùs albâ; peristomate expanso, subincrassato, intùs saturatè fusco, margine dextro valdè arcuato.*

Long. $30\frac{1}{2}$; diam. $19\frac{1}{2}$ lin.

Hab. Dolores, province of Pampanga, in the island of Luçon: found on trunks of trees.

β . *Anfractu ultimo medio bifasciato, fasciâ superiore angustâ, nigra, alterâ adnatâ latiore, albida.*

Long. 34; diam. $22\frac{1}{2}$ lin.

From Sual (island of Luçon): on leaves of trees.

BULIMUS ROMBLONENSIS. *Bul. testâ imperforatâ, ovato-pyramidatâ, tenui, striis obliquis et transversis confertis obsoletè decussatâ, albida, rufo-trifasciatâ, epidermide hydrophanâ deciduâ, liberâ, præsertim in fasciis, maculatâ; anfractibus $6\frac{1}{2}$ planiusculis, ultimo $\frac{1}{3}$ longitudinis vix superante; columellâ subrectâ, angustâ, planatâ; aperturâ ovalî; peristomate simplici, subexpanso.*

Long. 2 poll.; diam. $11\frac{1}{2}$ lin.

Hab. The island of Romblon, on leaves of trees. It is perhaps an *Achatina*.

BULIMUS SOLIDUS. *Bul. testâ imperforatâ, ovato-oblongâ, solidâ, obliquè striatâ, saturatè rufâ, epidermide fusco-albâ irregulariter strigatâ; spirâ conicâ, sursùm pallescente; anfractibus 7 vix convexiusculis, ultimo spirâ paulò breviorè; columellâ rectâ, basi subintortâ; aperturâ auriformi, lateraliter subeffusâ, intùs albida;*

peristomate subreflexo, intus rufo-nigricante, marginibus callo lato tenui junctis.

Long. 41; diam. $21\frac{1}{2}$ lin.

Hab. S. Juan, province of Cagayan (island of Luçon).

Var. testâ magis inflatâ, anfractu ultimo medio albido-fasciato.

Long. 39; diam. $22\frac{1}{2}$ lin.

Hab. Sual, province of Pangasinan (island of Luçon).

BULIMUS SUBCARINATUS. *Bul. testâ imperforatâ, pyramidatâ, tenui, striis obliquis et spiralibus confertissimis minutè decussatâ, albâ, diaphanâ, epidermide fuscescente, hydrophanâ irregulariter strigatâ, ad suturam fasciâ pallidè fulvescente ornatâ; anfractibus $6\frac{1}{2}$ planiusculis, ultimo $\frac{2}{3}$ longitudinis subæquante, obsolete carinato; columellâ rectâ, planâ, angustâ; aperturâ oblongo-subtetragonâ, intus albâ; peristomate simplici, parùm expanso.*

Long. $22\frac{1}{2}$; diam. $12\frac{1}{2}$ lin.

Hab. The island of Romblon, on leaves of trees.

BULIMUS UBER. *Bul. testâ imperforatâ, ovatâ, apice obtusâ, tenui, subdiaphanâ, lutescenti-albâ, obliquè regulariter et confertim striatâ; spirâ semiglobosâ; suturâ impressâ, albo-marginatâ; anfractibus 4 inflatis, ultimo spiram superante; columellâ subrectâ, propè basin subincrassatâ; aperturâ ovali; peristomate simplici, latè expanso.*

Long. $24\frac{1}{2}$; diam. 16 lin.

Hab. The island of Guimaras, on leaves of trees.

BULIMUS VIRENS. *Bul. testâ imperforatâ, ovato-pyramidatâ, tenui, leviusculâ, nitidâ, albâ, anfractu ultimo pallidè viridi; anfractibus 7 planiusculis, ultimo $\frac{1}{3}$ longitudinis vix superante, obsolete angulato; columellâ subrectâ, propè basin subincrassatâ, albâ; aperturâ obliquâ, lunato-ovali; peristomate recto, vix incrassato.*

Long. 27; diam. $14\frac{1}{2}$ lin.

Hab. Island of Burias: on leaves of trees. In form it resembles *Bul. carinatus*, Lea.

November 22, 1842.

William Yarrell, Esq., Vice-President, in the Chair.

The following paper, by M. C. A. Récluz, entitled "Descriptions of various species of *Navicella*, collected by Mr. Cuming in the Philippine Islands," was communicated by H. Cuming, Esq., Corresponding Member, who exhibited specimens to the Meeting in illustration of the descriptions.

The longitudinal diameter of the *Navicellæ* described in this catalogue has been taken from the anterior to the posterior side, and the transverse diameter from the summit to the base of the external opening, in its broadest part.

1. NAVICELLA JANELLI, Récluz, Revue Cuvérienne, 1841. p. 376. No. 9.

Var. *a*. *Testâ ellipticâ, convexâ, crassiusculâ, vix cancellatâ, lineis nigris reticulatâ, interstitiis lutescentibus.*

Var. *β*. *T. lineis nigris supernè reticulatis, anticè remotiusculis, sub-æquidistantibus; aperturâ margine cinereo-nigrescente, in fundo aurantiâ, interdum nigro-maculatâ.*

Var. *γ*. *T. dorso nigro latè pictâ et maculis concoloribus variegatâ, anticè lineis nigris radiatâ, posticè densè lineolatâ; labio lateraliter emarginato, medio subproducto ac rectiusculo.*

Var. *δ*. *T. lutescente, dorso transversim latè et remotè nigro undatâ; zonis interdum anticè conico-angulatis.*

Var. *ε*. *T. orbiculari, dorso nigerrimâ, maculis lutescentibus sparsis notatâ, margine brevè lineatâ, posticè lateraliter, interdum luteo-viridescente; aperturâ margine cinereo-nigrescente.*

Dimensions.—Var. *a*, 1·80 poll. longa; 1·28 ad 1·40 lata; 0·76 ad 0·80 convexa. Var. *ε*, long. 1·20 ad 1·40; lat. 0·96 ad 1·08; conv. 0·48 ad 0·52 poll.

Hab. ad Insulas Philippinas. Var. *a* and *γ* from Agoo, province of Pangasinan, island of Luçon: on stones in a rapid river. The var. *β*, *δ*, and *ε*, from Iba, province of Sambales, island of Luçon: on stones in a deep river.

The only difference I find between the varieties brought from the Philippine Islands and those from Guam (of which I have only been able to examine a single specimen) is, that the former are rather more solid and more convex. As to form and colour, they are too variable to dwell upon.

The operculum of this *Navicella* has particular characters, which it is important should be known, as confirming the specific value of this shell.

Operculum almost square, rather longer than broad, subconvex

above, of a light bluish black mingled with flesh-colour, striated upon the surface and upon the anterior side, divided by a broad and shallow canal, ending in a deep and wide anterior notch, which is cut square at the base. The canal and notch are bounded on the right by a smooth, linear, flesh-coloured rib, which is a little prolonged and truncated at the end with a furrow throughout its length. The left side of its inferior surface is striated above, sinuous at the margin and finely denticulated at its base, which is of a rosy red.

2. NAVICELLA VARIABILIS. *N. testâ ellipticâ, striis vix sub lente cancellatâ, lineolis transversis undulatis obsoletisque sæpiùs confluentibus olivaceis et maculis lutescentibus nigrescente anticè obumbratis variegatâ; apice marginali eroso, retusissimo; labio albo, posticè aurantio, margine subrecto; aperturâ albido-cærulescente.*

Long. 1.16 ad 1.28; lat. 0.80 ad 0.84; conv. 0.46 ad 0.54 poll.

Var. β . *T. ovatâ, posticè subtruncatâ, tenuiusculâ; apice ante marginem inserto, deroso.*

Long. 1.24 ad 1.28; lat. 1.10 ad 1.14; conv. 0.52 ad 0.56 poll.

Hab. Cagayan, province of Misamis, island of Mindanao: found on stones in a large river.

Although these two varieties appear to differ from each other in the position of the summit, I do not think they can be separated. Nevertheless the operculum varies perceptibly, and if their respective characters proved constant, which it would be necessary to verify by examining a certain number of specimens, then alone could one be distinguished from the other. The surface of this *Navicella* shows upon the anterior side longitudinal striæ, as deeply impressed as the transverse ones.

The operculum of the type is blackish throughout, except at the base, which is of an orange-red. The anterior side is notched. The dental apophysis is linear, smooth, a little raised, faintly striated both longitudinally and transversely. The external margin of this tooth projects but little, and its inferior part shows the commencement of a crest, but without teeth.

The operculum of the variety is of a rosy colour, with the inferior margin of an orange-red; the anterior side is more slightly notched in the middle, its dental apophysis projects rather more, and is linear, smooth, and divided by a longitudinal groove. The external margin of this tooth is narrow, without any trace of a denticulated crest at its base.

3. NAVICELLA SUBORBICULARIS. Sowerby, Cat. Tank. App. p. 10. No. 1092; Récluz in Guérin, Rev. Cuv. 1841. p. 377. No. 10.

Var. β . Récluz, l. c.; Rumph. Mus. Amb. p. 40. f. 0. Optime.

Var. γ . Minori, tenuiori.

Hab. ad Insulas Philippinas. From the island of Camiguin: found on stones in mountain-streams. Var. β , from Cagayan, province of Misamis, island of Mindanao: on stones in a large river. Var. γ , from Banguay, province of North Ylocos, island of Luzon: found on stones in a small stream.

I see neither in the general form nor in the operculum of these

varieties any character sufficient to distinguish them from the type: the colour alone is variable.

The operculum is of a pale flesh-colour, flattened with an arched notch at the anterior side. The apophysis projecting, smooth, a little more arcuated than that of the operculum of *Nav. Janelli*; its external margin is narrower, almost straight, finely crenulated in its lower half. The posterior border is very thin and of a dirty red.

4. *NAVICELLA LUZONICA*, Souleyet. *N. testâ ellipticâ, rufo-fusca seu olivacea unicolori seu nigro obsolete reticulatâ aut punctatâ, lateribus compressiusculâ, dorso valdè convexâ, solidâ; apice ad marginem posteriorem incurvo, subintegro ac eroso; labio semilunari aurantio, anticè rectiusculo; aperturâ albido-cærulescente, margine posteriore laterali nigrescente.*

Nav. Luzonica, Souleyet, Rev. Cuv. 1841. p. 375. No. 6. Junior.

Var. β . *T. olivaceo-fuscescente, maculis minimis lutescentibus vix nigrescente marginatis irroratâ.*

Var. γ . *T. rufo-fusca immaculatâ; apice deroso, convexo.*

Var. δ . *T. rufo-fusca, posticè tenuissime nigro et lutescenti longitudinaliter lineolatâ, maculisque minimis lutescentibus conicis nigro-marginatis, obsoletisque (sub lente) pictâ.*

Var. ϵ . *T. rufo-fusca, inter oculum et laminam maculis minimis sub-nigrescentibus adpersâ.*

Var. ζ . *T. minori, tenuiori, olivacea, posticè lineolatâ, suprâ nigro tenuissime reticulatâ, anticè maculis squamiformibus pictâ, labio stramineo, nigrescente circumvallatâ.*

Long. 1.28 ad 1.60; lat. 0.84 ad 1.12; conv. 0.52 ad 0.76 poll.

Hab. From Dingle, province of Ylo Ylo, island of Panay: found in a placid river on stones. The var. γ and δ from Cagayan, province of Misamis, island of Mindanao: on stones in a large river. Var. ϵ , from the mountains of the island of Negros: found on the rocky bed of a small stream.

The individual which served as type to M. Souleyet was young, and had been brought home in spirits of wine, which hindered him from seeing the black lines which adorn the external surface of this *Navicella*. There is then no difference between his specimen and these of Mr. Cuming.

The operculum of this *Navicella* is rose-coloured, clouded with white and blue, but the rose-colour predominates. The notch of its anterior portion is somewhat rounded; its subarcuated apophysis bears a longitudinal groove more or less impressed; the external margin of this apophysis is tolerably large, and rather concave below the middle, at the usual origin of the crest, which is wanting in this species. The inferior or internal surface is of a pale flesh-colour, with a blackish tint on its left margin. The muscular impression is rose-colour, very shining, almost square, truncated anteriorly and upon the left side, somewhat rounded at its base, straight and oblique on the right side, with an acute angle at its base.

This operculum varies in form and colour; its notch in one individual had the form of a Λ , or profoundly acute; in others it was

very open: some are altogether rose-coloured, others rosy on one side, yellow on the other, and blackish in the middle; others again almost entirely of a bluish tint, and mingled with these various colours.

The summit, sometimes almost entire or decorticated only, is at other times entirely eroded at its inferior surface; it is prolonged upon the posterior margin of the opening, though not beyond, and there it is worn away, as if it had been rubbed upon a grindstone.

5. NAVICELLA CUMINGIANA. *N. testâ orbiculari seu ovatâ, convexâ, solidâ, vix striatâ luteo-fuscescente, lineis concentricis nigris undulatis arcuatisve interdum reticulatis cinctâ; apice marginali eroso, retuso; labio plano, albo, anticè in medio producto; aperturâ albâ, cordiformi.*

Var. β . *T. nigro-reticulatâ, lutescente maculatâ et subfasciatâ.*

Var. γ . *T. ovato-ellipticâ, dilutè olivaceâ, posticè lineolis nigris transversis, interdum majoribus et remotis notatâ.*

Hab. Var. α et c from a mountain-stream in the island of Camaguig. Var. β from Cagayan, island of Mindanao.

Long. 1.00 ad 1.20; lat. 0.84 ad 0.92; conv. 0.40 ad 0.56 poll.

The columella is 0.24 to 0.28 poll. in diameter.

Operculum irregularly oval, of an uniform white or rayed with rose-colour above, profoundly notched anteriorly; the notch rounded at its base. The apophysary rib is only apparent at the anterior summit of the operculum; it projects but little, and is nearly acute. Its external margin is oblong, very thin and very smooth; the left or opposite margin is striated, somewhat imbricated above, and crenulated throughout its extent. The inferior surface is of a pale uniform flesh-colour. The subrotund or oboval muscular impression is of a rose-red anteriorly, and of a dark red at the base. Upon the operculum of the var. γ the left margin is completely wanting, which gives an oblong and a subtriangular form to the muscular impression. These characters are only accidental.

I have dedicated this interesting species to Mr. Cuming, whose numerous discoveries in natural history have enriched science with a crowd of new facts, as a testimony of my esteem.

6. NAVICELLA CLYPEOLUM. *N. testâ ovato-oblongâ, anticè et posticè rotundatâ, tenuè et concentricè striatâ, lineolis nigro-violaceis seu purpurascensibus, interdum confluentibus et maculis albido-lutescentibus oblongis elongatisve nigro-marginatis sub-serialibus et passim radiis pallidis binis pictâ; apice brevi ad dextram vix obliquante, ante marginem posito; labio semilunari, convexiusculo, fuscescente; aperturâ patulâ.*

Var. β . *T. olivaceo-nigricante, maculis obsoletis; apice eroso; labio latiore, carneo, in medio subproducto, recto.*

Var. γ . *T. olivaceâ, lutescente maculatâ, in medio ventre obsoletè biradiatâ; apice purpurascente, labio fuscescente.*

Var. δ . *T. atratâ, immaculatâ; apice eroso; labio et margine aperturæ carneo-fuscescentibus.*

Var. ϵ . *T. nigrescente lineolatâ pallide virescente radiatâ et maculatâ, apice submarginali roseo, integerrimo.*

Var. ζ . *T. fuscescente maculis linearibus albidis nigro acutè marginatis obsoletis sparsis variegatâ; apice purpurascente; labio et margine aperturae dilutè fuscis.*

Long. 0.80 ad 1.32; lat. 0.76 ad 0.92; conv. 0.24 ad 0.48 poll.

Hab. Var. β and γ from Cagayan. Var. α and ϵ from Banguay, province of North Ylocos, island of Luçon: found on stones in a mountain stream. Var. γ , island of Guimaras, on the rocky bed of a small stream. Var. δ , rocky bed of a stream in the mountains of the isle of Negros. The type itself is found at Pasuguing, province of North Ylocos, island of Luçon.

Operculum almost square, thin, of a rose-colour, cut squarely anteriorly, with a projecting, obtuse, linear tooth, which is divided by a slightly impressed longitudinal groove; the right margin very narrow, very thin, and without crest.

It is possible that this species may prove only a stronger, more robust state of the *Nav. tessellata*; nevertheless it differs in its general form, and its operculum also shows some differential characters.

7. NAVICELLA TESSELLATA, Lamarck.

Var. α . *T. lateribus angustatâ, subrectis; sub epidermide lutescente lineolis violaceis seu purpureis creberrimis, et maculis conicis concentricè seriatis pictâ; vertice recto, luteo; labio triangulari, anticè subarcuato, lateribus prolongato.*

Var. β . *T. ut in var. α , sed posticè subemarginatâ, griseo-fuscâ, maculis minoribus luteo-fuscescentibus conicis crebrè pictâ; apice dilutè purpurascente, recto; labio subtriangulari, angusto, roseo, anticè arcuato.*

Var. γ .? *T. oblongo-ellipticâ, anticè et posticè rotundatâ, crassiore sive oblongo-acutâ, lateribus angustatâ, nigerrimâ, apice eroso; labio semilunari, interdum triangulari, latiore, subrecto, lateribus non prolongatis.*

An *Nav. Clypeolum*, var.? credo, sed difficile est probandi sine operculo.

Long. 0.80 ad 0.92; lat. 0.76 ad 0.92; conv. 0.24 ad 0.48 poll.

Hab. Var. α , Cagayan: found in a large river on stones. Var. β , from Baccara, province of North Ylocos, island of Luçon: found on stones in a placid river. Var. γ .?, from Abulug, province of Cagayan, island of Luçon: found on stones in a large river.

Operculum square, a little elongated, narrow, and cut almost square anteriorly, with a slight notch towards the apophysis, which is slightly curved inwards (instead of being straight or turned back wards, as in that of *Nav. clypeolum*). The inclined angle of the middle of the left side is deeper, and in this species shows a depression or broad canal, in form of a Λ , the whole length of the apophysis; this canal is limited to the left by two slightly raised ribs.

These characters of the operculum, if they be constant, should suffice to avoid all confusion of this species and the one which precedes.

8. NAVICELLA LINEATA, Lamarck.

Var. α . *T. oblongâ, posticè acutâ, luteo-aureâ, supernè lineis spadicis radiantibus ex lineolis transversis obumbratis, anticè et late-*

raliter maculis oblongo-conicis subserialibus picta; apice lateraliter compresso, supra fornicato, roseo-purpurascense recto, marginali; labio angusto-triangulari, medio concavo-emarginato, lateribus anticè prolongatis.

Var. β . *T. ellipticà, posticè angustata, lutea medio dorsi lineis nigris angustis et latiusculis, et lineolis obliquis creberrimis radiis latioribus lateraliter efformantibus interdum confluentibus picta, labio triangulari anticè arcuato.*

Var. γ . *T. oblonga, posticè angusta, subacuta, lutea radiis angustis nigris medio dorsi notata, anticè et lateraliter crebrè nigrescente lineolata, et maculis linearibus luteis subserialis picta; apice subviolascense; labio triangulari, anticè arcuatim excavato.*

Var. δ . *T. elongata, lateribus compressa, dorso convexo-fornicata, anticè subacuta, interdum truncato; luteo-fuscescente, maculis oblongis anticè nigris acutis lateraliter lineolis tenuissimis obsoletisque obumbratis picta; apice interdum nigrescente, labio triangulari, luteo-fuscescente.*

Var. ϵ . *T. oblongo-elliptica, lateribus compressa, lineolis pallide fuscis aut purpurascensibus, et maculis oblongo-conicis luteis picta; radiis binis, pallide luteis in medio dorsi notata; labio triangulari, anticè arcuato.*

Var. α : long. 0.88 ad 1.08; lat. 0.44 ad 0.56; conv. 0.24 ad 0.48 poll. Var. β and γ : long. 0.96 ad 1.04; lat. 0.60 ad 0.64; conv. 0.32 ad 0.36. Var. δ : long. 0.52 ad 0.64; lat. 0.32; conv. 0.28 ad 0.32.

Hab. Var. α , from Banguay, province of North Ylocos: on stones in a mountain-stream. Var. β , from Cagayan: on stones in a large river. Var. δ , from Baccara: on stones in a rapid river. Var. ϵ ?, cum præcedenti.

All these varieties are very remarkable, and, with the exception of var. ϵ , whose operculum I have not seen, all certainly belong to the same species. The operculum of *Nav. lineata* is oblong, very thin, pale yellow, a little inclined to pale green, rounded behind, notched before, notch in an oblique line at the base. The left side of this operculum is slightly arcuated in the centre; the right side almost rectilinear and limited by an apophysary tooth, very narrow and a little prolonged anteriorly. Muscular impression triangular, elongated, inclined obliquely to the left.

9. NAVICELLA ENTRECASTAUXI, Récluz. Rev. Cuvier. p. 380, No. 14.

Var. β . *T. obovata, nigro-purpurascense, concentricè et crebrè lineolata, maculis luteis conicis aut subquadratis picta; apice purpurascense marginali, non exserto; aperturà albido-cærulescente.*

Long. 0.80 ad 0.90; lat. 0.56 ad 0.60; conv. 0.20 ad 0.28 poll.

Hab. ad insulas Philippinas.

Operculum almost square, of the form and sculpture of that of *Nav. tessellata*, offering however some characters which the state of that which was submitted to me does not allow me to judge of

with certainty. Its colour is of a rosy white, and yellow in the centre. It is possible that the *N. Entrecauxi* may prove only an oboval variety, with a marginal summit of *N. tessellata*. When I shall have seen a greater number of specimens with their opercula I may be enabled to pronounce with more certainty.

It results from this examination of the *Navicellæ* collected by Mr. Cuming; together with those I have had an opportunity of studying up to the present time—1st, that the number of known species of this genus amounts at present to eighteen; 2ndly, that the Asiatic Islands is that part of the world which contains the greater number of species; and 3rdly, that Polynesia is afterwards the most rich locality in species of this genus.

A communication by Mr. Lovell Reeve, "On the genus *Phorus*, a group of agglutinating Mollusks of the family *Turbinacea*," was then read.

"It is remarkable that a group of mollusks of such decided importance as those which I have selected for consideration should have so long escaped the especial notice of conchologists. The genus *Phorus* was introduced many years since by De Montford; but as it was not recognised by Lamarck, few authors thought it worthy of adoption. Little enough is known of the nature or anatomy of the *Phori*, but the remarkable character which their shells exhibit may be sufficiently estimated to rest their claim upon that alone to the rank of a genus.

"The character here alluded to is a property which these mollusks possess of agglutinating to the outer surface of their shells any fragments of stones, shells, corals, or other marine debris that they may chance to be in contact with, and which become so firmly attached that they cannot be dislodged without violence. The well-known Carrier Trochus (*Trochus agglutinans*, Lamarck; *Phorus onustus*, mihi) was for a long time the only species of *Phorus* known; when others even were discovered they were only regarded as varieties of that species, and the agglutinating property which they showed their animal occupants to possess, was not considered to be of any generic importance. The distinction however which De Montford assigned to these animals has become of infinite value, for we now possess several species of them, and the agglutinating power operates in different ways in each; some shells, for example, are found with only a few small pebbles agglutinated to the earlier whorls, whilst others are characterized by their having only such fragments of shells or stones as are flat or tile-shaped collected round the edge or periphery of the whorls; and these several methods of agglutinating are each confined to particular species. Other modifications of this property may yet be discovered, and I trust, as the *Phori* are not uncommon in the West Indies, that they will ere long be made the subject of anatomical examination.

"I see no reason at present for altering the situation which is commonly assigned to these mollusks in the general system; the struc-

ture and formation of the shell, as well as the presence of an operculum, seem sufficiently to indicate that they are allied to the *Trochi*, and not to the *Calyptrae*, as supposed by Mr. Gray.

"I now proceed to lay seven species of this interesting genus before the Society, four of which are entirely new to me."

Genus PHORUS.

Testa orbicularis, subconica, spirâ obtusâ, anfractibus regularibus, peripheriâ tubulis cavis interdum ornata, conchyliorum lapidumque frustis irregulariter agglutinatis; facie infernâ concaviusculâ, granosâ aut lamellosâ; umbilico amplo, profundo, sæpè ætate occultato; aperturâ depressâ, marginibus disjunctis, labro simplici, acuto. Operculum corneum tenue, ovale.

"Such are the characters which appear to me to apply generically to this group. The specific differences consist, not in the nature of the materials which are agglutinated, as supposed by Born and others, who had their *Trochi lithophorus* and *conchyliophorus*, for stones, shells and corals may often be found collected on the same individual; but in the perpetuated variations of the living shell, and the manner in which the surrounding debris become attached to it."

PHORUS SOLARIS. *Phor. testâ orbiculari, subconicâ, paucis calculis versus apicem agglutinatis; apice acuto; superficie striis obliquis et undulatis inscriptâ; anfractibus tubuloso-radiatis, tubulis tenuibus cavis, apertis; infernâ facie plano-concavâ, undulatim striatâ; aperturâ semicordatâ; umbilico angusto.*

Reeve, Conch. Syst., vol. ii. pl. 214. f. 1 and 2; Conch. Icon. Phorus, pl. 2. f. 5 a and b.

Trochus solaris, Linnæus, Lamarck, &c.

Hab. Malacca. (Found in coarse sand at the depth of seven fathoms.) Cuming.

"This very beautiful shell, in which the periphery of the whorls is extended throughout into hollow spouted spines, has never more than a few pebbles agglutinated to the first one or two whorls. The finest specimen I know of is in the collection of the Rev. Mr. Stainforth, and has furnished me with the drawing above referred to."

PHORUS ONUSTUS. *Phor. testâ orbiculari, conicâ, brunnescente-albâ; anfractibus subangulatis, rudibus, vel conchyliis vel lapidibus agglutinatis; infernâ facie subconcavâ, rufâ; umbilico ætate occultato.*

Reeve, Conch. Syst., vol. ii. pl. 214. f. 3, and 215. f. 8; Conch. Icon. Phorus, pl. 1. f. 3 a and b.

Trochus agglutinans, Lamarck.

Trochus conchyliophorus,
Trochus lithophorus, } auctorum.

Hab. West Indies.

This is the original and best known species of the group; it is by far the most profusely covered, and is generally heavily laden with shells, stones, or corals.

PHORUS INDICUS. *Phor. testâ orbiculari, convexo-conicâ, ad api-*

cem acutâ, tenuissimâ, subtilissimè striatâ, albâ, supernè rosâ; anfractuum peripheriâ dilatâ, acutissimâ; infernâ facie profundè umbilicatâ, fusco-fasciatâ, lamellâ laterali cavitatem formante.

Reeve, Conch. Syst., vol. ii. pl. 215. f. 6; Conch. Icon. Phorus, pl. 1. f. 2.

Trochus Indicus, Gmelin, Lamarck.

Wagner, Supp. to Chemnitz, p. 129. pl. 229. f. 4062 *a, b*.

Hab. Cochin-China.

"I never remember having seen this shell with any shells or pebbles attached to it, but the first two or three whorls sufficiently indicate that some have been agglutinated to it at one time or another by the numerous indentations which they exhibit. The under surface of the shell is generally marked with a circular brown band, the centre being widely umbilicated."

PHORUS EXUTUS. *Phor. testâ orbiculari, depresso-conicâ, ad apicem acutâ, rosaceo-fulvâ, tenuissimâ, volutâ peripheriâ inconcinniter undulatâ, dilatâ, superficie diagonaliter striatâ et sulcatâ; infernâ facie pallidâ, nitente, striatâ, versus marginem granosâ, lamellâ cavitatem formante.*

Reeve, Conch. Syst., vol. ii. pl. 215. f. 9 and 10; Conch. Icon. Phorus, pl. 2. f. 7 *a* and *b*.

Hab. — ?

"This shell exhibits very slight evidence of ever having had any matter agglutinated to it. It somewhat resembles the preceding species, but may be readily distinguished by the elaborate manner in which the whorls are diagonally carved with grooves and striae. The periphery of each whorl is most unusually dilated beyond their laminal bases; it is exceedingly thin and fragile, and very unevenly undulated."

PHORUS CALCULIFERUS. *Phor. testâ orbiculari, convexo-conicâ, tenui, subtilissimè granosâ et striatâ, volutis calculis et conchyliorum frustis supernè symmetricè ornatis; facie infernâ profusè granosâ et striatâ.*

Reeve, Conch. Syst., vol. ii. pl. 215. f. 7; Conch. Icon. Phorus, pl. 1. f. 1.

Hab. — ?

"I have seen several specimens of this very pretty species; the shell is of a bright subrosaceous fawn-colour, and entirely covered with fine diagonal striae and cross grains. The agglutinating property seems confined to the upper portion of the whorls, so that there is always a band of fine pebbles or shells around the sutures, and they exhibit a regular increase in their selection as the agglutinating surface increases with the growth of the shell."

PHORUS PALLIDULUS. *Phor. testâ solidâ, albâ, acutissimè pyramidalî, volutis angulatis conchyliorum frustis sparsis agglutinatis; infernâ facie leviter concavâ, pallidulâ, subtilissimè striatâ.*

Reeve, Conch. Syst., vol. ii. pl. 214. f. 4; Conch. Icon. Phorus, pl. 1. f. 4.

Hab. Coast of Japan : Siebald.

This shell is most nearly allied to the *Phorus onustus*; it is very solid, sharply pyramidal, and of a singular live pallid-appearance. There are two or three specimens of it in the collection of H. Cuming, Esq.; and the fragments of shells which are agglutinated indiscriminately to the area of the whorls are very much broken in all, though the shells to which they are agglutinated are in every respect live and perfect.

PHORUS CORRUGATUS. *Phor. testâ orbiculari, obeso-conicâ, albâ, diagonaliter corrugatâ, volutarum peripheriâ conchyliorum lapidumque frustis planis ornata; facie inferâ apallidâ, leviter granosâ et striatâ.*

Reeve, Conch. Syst., vol. ii. pl. 214. f. 5; Conch. Icon. *Phorus*, pl. 2. f. 6.

Hab. — ?

The method or disposition of the agglutinated fragments in this species is very peculiar and distinct from that in any other. The generic property is here confined to the base of the whorls, and the fragments which become attached are all inserted edgewise, ranging with great regularity side by side. The specimen above described is in the collection of the Rev. Mr. Stainforth.

Mr. Cuming exhibited to the Meeting the various species of *Phorus* referred to in the above communication, and also a series of specimens of the genus *Pecten*, descriptions of which, by G. B. Sowerby, Jun., were read. The species described are figured in Sowerby's 'Thesaurus Conchyliorum.'

PECTEN PICTUS, Thes. Conch. pl. 20. f. 233. *Pect. T. obliquè ovatâ, compressâ; auriculis subæqualibus, radiatim sulcatis, ad basim emarginatis, ad margines undulatis; lateribus striatis; costis 13, triangulatis, elevatis, lævibus; interstitiis angustis, bisulcatis, crenatis; colore pallidè fulvo, fasciis et punctis et lineis rubris variegato; intus albo.* Long. 0·80; lat. 0·25 poll.

Hab. Ins. Baiæ, Ins. Negros, Philippinarum. H. Cuming legit. Found in coarse sand at a depth of seven fathoms.

Equivalve, nearly equilateral, flat, with thirteen nearly triangular ribs, slightly flattened at the upper angle; the ears nearly equal, and the general characters of the species indicating some degree of affinity with the group containing *P. Radula*.

PECTEN SUPERBUS, Thes. Conch. pl. 12. f. 11. *Pect. T. subovali, obliquâ, posticè expansâ, compressâ, crassâ; auriculis parvis, obtusis; costis 23, crassis, rotundatis, lævibus, interstitiis angustis; colore propè umbones roseo, propè margines pallidè luteo, fasciis rubris, præruptis, angulatis variegato.* Long. 2·40; lat. 0·65; alt. 2·60 poll.

Hab. — ? Mus. H. Cuming.

Flat, solid, obliquely oval, with the auricles small, obtuse; twenty-three rounded, smooth, thick ribs; the general colour pale straw,

pink at the umbones, variegated with interrupted angular bands of brightish red.

PECTEN VELUTINUS, Thes. Conch. pl. 13. f. 31. *Pect. T. subovali, subcompressa, æquilaterali, radiatim leviter striata, ad marginem subinflata; auriculis subæqualibus, striatis, margine oblique plicato; costis 5, crassis, rotundatis, gradatim declinantibus; colore fulvo-rufescente, fasciis albis, angulatis, subtus fusco-marginatis variegato; intus albo.* Long. 1.15; lat. 0.37; alt. 1.25 poll.

Hab. Macassar. Hinds legit.

Nearly oval, rather flat, equilateral, with fine radiating striæ; auricles nearly equal, striated; hinge obliquely plicated; ribs five, rounded, not very deep; colour dull fawn, variegated with angular bands of white edged with brown lines. The whole surface of the shell has a somewhat velvety appearance.

PECTEN SERRATUS, Thes. Conch. pl. 13. f. 56. *Pect. T. oblique ovali, irregulari, posticè subproducta, subcompressa; auriculis inæqualibus, posticis minoribus, costis numerosis, minutissimè squamiferis; colore sulphureo, maculis magnis fuscis variegato, intus ad marginem purpureo.* Long. 1.20; lat. 0.50; alt. 1.40 poll.

Hab. ad Insulas Philippinas. H. Cuming legit. Found under stones at low water on the island of Zebu.

Resembling *P. squamosus*, but more oblique and more ventricose, with the scales more minute.

PECTEN ALBOLINEATUS, Thes. Conch. pl. 14. f. 69. *Pect. T. ovali subtrigona, compressa, æquivalvi; auriculis inæqualibus, posticis minimis, anticis magnis, acutis, sulcatis; costis numerosis, æqualibus, subquadratis; interstitiis griseo-maculatis, valvæ sinistræ costis griseis, lineis albis interruptis, costarum tribus albis.* Long. 0.93; lat. 0.25; alt. 1.19 poll.

Hab. Ins. Guimaras, Philippinarum. Found under stones at low water.

Resembling *P. ornatus*, Lam., but with the ribs more numerous, equal and regular.

PECTEN SINGAPORINUS, Thes. Conch. pl. 13. f. 151, et pl. 18. f. 71. *Pect. T. rotundata, subtrigona, subcompressa, æquivalvi, subæquilaterali, subtenui; auriculis inæqualibus; anticis magnis; costis 24 elevatis, subquadratis, lævibus; colore albo, pallide roseo tincto, radiis quatuor latis, fusco-maculatis; prope umbones griseo maculato.* Long. 1.30; lat. 0.40; alt. 1.30 poll.

Hab. Singapore. Found in coarse sand at the depth of six fathoms. More depressed spreading and circular than *P. Tranquebaricus*.

PECTEN CRASSICOSTATUS, Thes. Conch. pl. 15. f. 111. pl. 17. f. 152. *Pect. T. subtriangulari, crassa, subæquilaterali, sublævi; auriculis inæqualibus, costas squamiferas ferentibus; costis 24, crassis, elevatis, subquadratis, annulatis; lateralibus squamiferis; interstitiis ferè lævibus, colore pallide purpureo, vel aurantiaco.* Long. 4.50; lat. 1.50; alt. 4.30 poll.

Hab. Japan. Mus. H. Cuming.

A much larger and more solid shell than *P. senatorius*, with the ribs much more elevated and more square.

PECTEN SPLENDIDULUS, Thes. Conch. pl. 20. f. 246. *Pect. T. ovali, subtrigond, tenui, compressa, ad latera angulata; auriculis valde inæqualibus, squamoso-sulcatis, complanatis; anticis latis, elongatis; sinu magno; costis 25, concinnis, subdistantibus, rotundato subquadratis, squamas acutas erectas, distantes ferentibus; colore rubro, maculis albis elongatis, ad auricula lateraque fasciatim variegato.* Long. 1.20; lat. 0.35; alt. 1.35 poll.

Hab. Singapore. Mus. H. Cuming. Found at a depth of six fathoms in coarse sand.

A much more compressed and regularly formed shell than *P. varius*.

PECTEN PSEUDOLIMA, Thes. Conch. pl. 20. f. 235. *Pect. T. rotundato-ovali, subobliqua, subæquivalvi, ventricosa; auriculis inæqualibus, squamoso-sulcatis; anticis elongatis, acutis, valvæ dextræ ad marginem spinosis; posticis parvis obtusis; costis 27, crassiusculis, bisulcatis, subrotundatis, squamarum acutarum series tres ferentibus; interstitiis angustis planis; colore aurantiaco, albo (præcipuè ad umbones) variegato.*

Hab. Jacna, ad Ins. Bohol, Philippinarum. H. Cuming legit.

The ribs are beautifully ornamented by three rows of close, sharp, erect, slightly curved scales.

Mr. Sowerby also characterized a new species of *Rostellaria*.

ROSTELLARIA CURTA, Thesaurus Conchyliorum, part i. pl. 5. f. 7. *Rost. testâ crassâ, lævi, fusiformi; apice leviter plicatâ; anfractibus numerosis planis; canali postico super anfractûs penultimæ partem decumbenti; canali antico brevi, recto; labio interno crasso; labio externo subexpanso, dentibus sex irregularibus; colore fulvo, fasciâ latâ castanæ partem posticam anfractuum decurrente.*

Hab. —? Mus. Cuming.

The whorls of this species are flatter than in *Rostellaria curvirostrum*; the last whorl is much shorter and the anterior canal is straight. The outer lip being irregular, led me at first to suppose that the specimen from which the description is taken might be one of the common species in which the completed aperture had been prematurely formed, it being well known that *R. curvirostrum*, in a young state, has the beak straight. But a slight difference in the shape of the whorls, the broad chestnut bands on the upper part of them, and the fact of several other specimens precisely similar having been seen by Mr. Cuming at Berlin, have determined me to describe this as a new species, which I now do with little hesitation.

Mr. Gould exhibited a new species of Parrot belonging to the genus *Coryphilus*, which he characterized as follows:—

CORYPHILUS DRYAS. *Cor. vittâ frontali metallicè viridi, cærulescente verticem versus; hujus plumis elongatis et saturatè cæruleis;*

dorso et alis obscurè viridibus, uropygio, caudæ tectricibus, et crisso pallidè viridibus, caudæ reatricibus albis, marginibus pallidè virescenti-cæruleo tinctis; loris albis, pectore vittâ saturatè cæruleâ ornato; abdomine albo, femoribus saturatè cæruleis.

A band of verditer-green crosses the forehead, changing into blue towards the crown, the feathers of which are lengthened and of a deep blue, with a narrow line of shining paler blue down the centre of each; back and wings dull verditer-green; rump, upper and under tail-coverts light verditer-green; primaries black, margined on the outer webs with deep greenish blue; tail-feathers white, gradually passing into pale greenish blue on their margins, and the shafts brown; lores white; throat and front of the neck deep blue, each feather with a spot of white at the tip; breast crossed by a band of deep blue; abdomen deep blue, each feather largely tipped with white; thighs deep blue; bill dark horn-colour; feet yellowish white.

Total length, $7\frac{1}{4}$ inches; bill, $\frac{7}{16}$; wing, $4\frac{3}{4}$; tail, $3\frac{1}{4}$; tarsi, $\frac{1}{2}$.

Hab. The Marquesas Islands.

From the indistinct character of the markings of the throat and abdomen, the bird from which the above description was taken would appear to be somewhat immature.

Mr. H. E. Strickland then communicated to the Meeting a list of the Birds in the Chinese collection now exhibiting at Hyde Park Corner:—

“In the present very imperfect state of our knowledge of Chinese zoology, any contribution, however small, becomes valuable, and I have therefore thought it worth while to draw up as accurate a list as I can of the species of birds contained in the very interesting collection of Chinese productions now exposed to public view. Most of the species enumerated exist also in the British Museum, where the kindness of Mr. G. R. Gray has aided me in identifying them.”

N.B. The Nos. refer to the printed catalogue and to the specimens.

Case 19, No. 374. *Euplocamus nycthemerus*, (Linn.)*

375 & 376. *Polyplectron Hardwickei*, Gray.

377 & 378. *Thaumalea picta*, (Linn.)

379. *Paradisea sanguinea*, Shaw.

380 & 382. *Paradisea apoda*, Linn.

381. *Cicinnurus regius*, (Linn.)

383. *Cygnopsis cygnoides*, (Linn.)

Case 21, Nos. 385 & 386. *Phasianus torquatus*, Gm. This is the true wild Ring-necked Pheasant indigenous to China. The Ring-necked Pheasants sometimes shot in this country are supposed to be a mixed breed between this species and *P. colchicus*.

387. *Aix galericulata*, (Linn.)

388. *Oriolus chinensis*, Linn.

389. *Arborophila sphenura*, (Gray.)

* The brackets () imply that the authority refers to the *specific names only*.

390. *Acridotheres cristatellus*, (Gm.)

391. *Lanius erythronotus*, Gould.

392. *Centropus*. Several of the Asiatic species of this genus are as yet so imperfectly determined that I do not venture to affix a specific name to this bird.

393. *Ceryle varia*, Strickl. This, which is the Eastern representative of the *C. rudis* of Europe and Africa, is distinguished by the round black spots on the throat and the greater amount of white on the upper parts.

394. *Gallinula gularis*, Horsf.

395. *Coturnix communis*, Bonn.

396. *Fuligula cristata*, Steph.

Case 22, Nos. 398 & 399. *Rollulus cristatus*, (Gm.)

400 & 401. *Gallus bankiva*, Temm.

402. *Turnix pugnax*, (Temm.)

403. *Acridotheres ialla*, (Horsf.)

404. *Palæornis bengalensis*, (Gm.)

405. *Acridotheres sericeus*, (Gm.) This species is quite distinct from *A. dauricus*, Pall., with which it is united by Wagler.

406. *Hæmatornis jocosus*, (Linn.)

407. *Merops philippinus*, Linn.

408. *Palæornis torquatus*, Vig.

409. *Amadina punctularia*, (Linn.)

410 & 411. *Amadina oryzivora*, (Linn.)

412. *Pyrrhuloxia gingica*, (Gm.) (*Fringilla cruciger*, Temm.)

413. *Merops viridis*, Linn.

414. *Acridotheres malabaricus*, (Gm.)

415. *Palæornis torquatus*, Vig. Female.

416. *Amadina malacca*, (Linn.)

417. *Hydrophasianus sinensis*, (Gm.)

418. *Psittacus sinensis*, Gm.

419. *Anser albifrons*, (Gm.)

420. *Phalacrocorax*. An immature specimen, apparently identical with *P. carbo*, (Linn.) of Europe.

423. *Xema*, apparently referable to *X. ridibundum*, (Linn.)

424. *Rhynchospis clypeata*, (Linn.)

There are also in Case 22, but without numbers, the two following: *Porzana rubiginosa*, (Temm.), and *Rallus gularis*, Horsf.

Case 51, Nos. 862 and 863. *Francolinus perlatus*, (Gm.)

864. *Querquedula falcaria*, (Pall.)

866. *Coturnix chinensis*, (Linn.)

867. *Lanius lucionensis*, (Linn.)

868. *Ianthocincla canora*, (Linn.)

869 & 875. *Coccothraustes melanurus*, (Gm.)

870 & 871. *Pyrgita rutilans*, (Temm.)

872 & 873. *Psittacula galgula*, (Linn.)

874. Apparently the young of *Melophus Lathamii*, Gray.

876. *Turdus*, apparently referable to *T. merula*, Linn., fem.

877. *Gallinula chloropus*, (Linn.)

878. *Gallinula phænicura*, (Gm.)

879. *Dafila acuta*, (Linn.)
 880. *Calænas cruenta*, (Gm.)
 Case 52, No. 884. *Querquedula formosa*, (Georgi.)
 885. *Coturnix communis*, Bonn.
 886. *Anthus*. This genus is at present imperfectly worked out, and it is therefore difficult to attach a specific name accurately to the above specimen.
 887. *Herodias garzetta*, (Linn.)
 888. *Oriolus chinensis*, Linn.
 889. *Asio brachyotus*, (Linn.)
 890. *Halcyon atricapilla*, (Gm.)
 891. *Copsychus longirostris*, (Swains.)
 892. *Carduelis sinica*, (Linn.) (*Fringilla kuwariba*, Temm.)
 893. *Melophus Lathamii*, Gray.
 894. *Gallinula phænicura*, (Gm.)
 895. *Liothrix sinensis*, (Gm.)
 896. *Yunx torquilla*, Linn.
 897. *Mareca penelope*, (Linn.)
 898. *Querquedula crecca*, (Linn.)
 Case 54, Nos. 917 and 921. *Argus giganteus*, Temm.
 918 & 920. *Turtur suratensis*, (Gm.)
 919. *Acridotheres tristis*, (Linn.)
 922. *Falæornis malaccensis*, (Gm.)

"The birds above enumerated were obtained by Mr. Dunn during his residence at Canton. Some of them appear to have been imported thither from Malacca, and the remainder form but a small sample of the zoological treasures that might be obtained were the Chinese Empire opened to naturalists. It seems strange that so little has yet been done to obtain specimens of Chinese zoology through the medium of the natives. Thousands of bird-skins are annually sent to Europe by the natives of Brazil, Senegal and Malacca, and there can be no reason why a similar trade should not be established with China. All that the Chinese want is a little instruction in the art of preserving specimens, which might be easily communicated if some of the merchants connected with the tea-trade would take an interest in the subject." H. E. S.

The following descriptions of new species of *Nerites*, collected by Mr. Cuming in the Philippine Islands, by M. C. A. Récluz, were also read.

Observation.—By length is meant the distance from the summit of the spire to the external base of the columella; by breadth, the diameter formed by the extremities of a line which should pass from the anterior to the posterior side, and by convexity or thickness, the distance comprised between the most convex parts of the columella and of the last whorl.

Second Section of the Genus.—Shells smooth, or striated lengthwise; outer lip without teeth and without furrows internally; columella not notched at the summit; columellar lip sharp, or crenulated at the margin. *Neritina*, Lamarck.

* Orbiculatæ seu subhemisphæricæ.

1. *NERITA LABIOSA* (Sowerby). *N. testâ orbiculari, posticè angustatâ, fornicatâ, crassâ, maximâ, striatâ, fusco-viridescente, nigro et rufo obsoletè variegatâ; anfractibus duobus ad suturam compressis; apice compresso-concavo; aperturâ orbiculari, subcontinua, intùs albidâ; labio latissimo, depresso-plano, fusco-aurantio, margine subarcuato, edentulo; labio rotundato, supernè et infernè dilatato.*

Var. β . *Testâ nigrescente, immaculatâ.*

Long. 1.52; lat. 1.84; conv. 1.04 poll. Aperturæ altitudo 1.52; lat. 1.60 poll.

Hab. Ad Insulas Philippinas; Tanhay, isle of Negros: in a small river. Var. β , Agoo, province of Pangasinan, isle of Luçon: on stones in a rapid river.

Two pyriform muscular impressions, and more forward than in any other species, are visible at the internal base of the columella, which has no trace of callosity.

The upper tooth of the operculum is oblique, lamellated, with a strongly-cut crest, a character which is unique in the genus *Nerita*.

2. *NERITA SQUAMÆPICTA*. *N. testâ ovato-subhemisphæricâ, supra medium vix depressâ, striis longitudinalibus remotis supernè et anticè subarcuatis impressâ, sub epidermide olivaceo maculis squamiformibus anticè nigro-marginatis undique pictâ; apice rotundato-obtusâ; aperturâ extùs ovatâ, intùs albido-cærulescente; labio plano, lutescente, medio albo, anticè tenue arcuatim denticulato.*

Long. 1.16; lat. 1.44; conv. 0.88 poll.

Hab. Agoo, province of Pangasinan, isle of Luçon: in a rapid river.

Operculum similar to the *Nerites*, allied to *N. pulligera*; subconvex above, finely striated lengthwise, of a whitish fawn-colour posteriorly; rosy anteriorly, streaked with circular bands of a blackish blue; subconcave below, of a dirty green, spotted with rosy white at the anterior side. Two teeth: the upper one ovate, acute at the summit, reddish; the lower one circular, canaliculated lengthwise, feebly striated transversely, yellowish.

3. *NERITA PETITI*, Récluz, Rev. Cuv. 1841. p. 274. No. 24.

Var. β . *T. majori, fusco-castaneâ; infimè et supernè ad suturam compressâ et subcanaliculatâ; spirâ retusâ.*

Var. γ . *T. minori, fusco-nigrescente, sub oculo et lumine maculis nigris diversiformibus notatâ; aperturâ subrotundâ, supernè et infernè dilatatâ, intùs aurantiâ.*

Long. 1.40; lat. 1.96; conv. 1.16 poll.

Hab. Cagayan, province of Misamis, island of Mindanao: on stones. Var. γ , Agoo: in a mountain-stream.

The operculum of this species differs from that of *N. pulligera* only in its paler colour.

4. *NERITA ASPERULATA*. *N. testâ ovato-ellipticâ, striis intertextis granulosis asperulatâ, fusco-nigrâ, sub oculo et lumine, lineis ni-*

gris ramosis transversis intricatis notatâ; anfractibus $1\frac{1}{2}$, supernè depressis; apice prominulo, obtuso; apertura rotundatâ, supernè et infernè dilatâ, luteo-fuscescente; labio plano-compresso, margine vix arcuato et tenue ruguloso.

Long. 0.56; lat. 0.76 ad 0.84; conv. 0.40 ad 0.44 poll.

Hab. Pasaguang, province of North Ylocos, island of Luçon: on stones in a small river.

The operculum of this species does not differ from that of *N. puligera*, except in its colour, which is of a brownish black, faintly and indistinctly striated with fawn-colour from the summit to the anterior margin; the striæ often scarcely apparent.

5. *NERITA PANAYANA*. *N. testâ parvâ, ovato-hemisphæricâ, ventricosâ, posticè angustâ, tenui; luteo-viridescente, lineolis nigrescentibus angulato-flexuosis creberrimis pictâ; anfractibus $1\frac{1}{2}$ supremo eroso-retuso; apertura extûs orbiculari, intûs dilatâ, albido-cærulescente; columellâ semi-lunari planâ, albâ, anticè recitiusculâ.*

Long. 0.28; lat. 0.40; conv. 0.20 poll. Apertura altit. et diam. 0.28 poll.

Hab. River Dingle, province of Ylo-Ylo, island of Panay: on small stones.

Operculum unknown. This species resembles some varieties of *Ner. dubia*, but differs from them by its form and by its spire; also in the absence of any depression at the inferior margin of the columella.

6. *NERITA CREPIDULARIA* (Lamarck).

Var. major. T. hemisphæricâ, crassiusculâ, dorso fornicatâ, purpureo-nigrescente maculis quadratis luteis tessellatâ, apertura extûs continuâ pallidè cinnamomeâ; labio subplano, in medio longitudinaliter arcuatimque sulco notato, anticè arcuatim crenulato.

Long. 0.80; lat. 1.04; conv. 0.60 poll.

Hab. Jimmaymilan, isle of Negros: found on the trunks of the Nepa Palm, in brackish water.

I do not see in the characters of this Nerite anything to cause its separation from the *Neritina crepidularia*, Lam.; *N. mitrula*, Menke, 'Synopsis,' p. 48; nor from the *N. violacea*, Gmelin, if it is not its larger proportions. I presume that the *Patella neritoidea*, Linn., Mus. Lud. Ulr., p. 688. No. 409, is the same shell, worn and occupied by a *Pagurus*.

7. *NERITA RANGIANA*, Récluz in Guérin, Rev. Cuv. 1841. p. 339. No. 46.

Var. minor. T. pulchrè viridi, punctulis albis, anticè nigro marginatis, transversim 2-4 seriatis, ad suturam maculis albis subarcuatis lacteis ornatâ. An Ner. viridis, Sowerby, Conch. Illustr., f. 24?

Long. 0.23; lat. 0.24 poll.

Hab. Dumaguété, island of Negros: found in a small stream.

Operculum green, slightly concave above, finely striated length-

wise, with two other circular striæ from the summit to the posterior margin; very convex underneath, hollowed at the posterior side for the insertion of the muscle, and provided with two teeth at the top; the upper one very short, lamellated, and truncated at the summit; the second circular, equally short, dilated into a sort of plate on the side of the summit of the operculum, which gives to this tooth a lanceolate form.

The figure published by Mr. Sowerby under the name of *Neritina viridis*, Linn., and which this author says inhabits Antigua, appears to me to be the same as *Ner. Rangiana*, var. *minor*; but as I have only his figure to guide me, I cannot state it as a fact.

8. *NERITA PULLIGERA*, Linn., Lamarck (non Lesson, Voy. Coq.).
Var. β . *T. labio posticè aucto*.

Hab. Cagayan, island of Mindanao: on stones in a deep river.

This prolongation of the posterior border of the columella renders this variety remarkable. This Nerite may possibly be found hereafter biauriculated.

* * Auriculatæ.

9. *NERITA SUBAURICULATA*. *N. testâ ovato-hemisphæricâ, convexâ, fusco-violascente, punctis albido-lutescentibus densè aspersâ; apice brevissimo; aperturâ extûs ovatâ, posticè truncatâ, continuâ, plumbeo-nigrescente, dilatâ; columellâ convexo-depressâ, sulco obsoleto circumcinctâ, anticè vix arcuatâ, denticulatâ; labro superne in auriculâ brevissimâ prolongatâ.*

Long. 0.52 ad 0.56; lat. 0.68 ad 0.72; conv. 0.32 ad 0.40 poll.

Hab. Jimamailan, isle of Negros: on the Nepa Palm trunks in brackish water.

This *Neritina* is very nearly allied to *Ner. violacea*, Gmel., but is smaller, less convex, with the summit more inclined towards the margin; the opening truncated posteriorly, dilated at the summit and at the base, and auriculated on the superior side. The operculum does not differ materially; it is a little darker above, with a flesh-coloured zone on the middle, visible only at its base.

10. *NERITA BICANALICULATA*. *N. testâ ovatâ, posticè truncatâ, dorso convexâ, tenui, pellucidâ, fuscescente, lineis violaceo-nigris, crebrè et eleganter reticulatâ; apice brevissimo, dorso interdum compresso plano; labio lato, subconvexo, margine arcuatim tenue denticulato; labro posticè biauriculato; auriculis angustis, subtùs canaliculatis.*

Var. β . *T. fuscescente, lineolis obsoletis, interstitiis interdum conico-angustis; spirâ integerrimâ, punctiformi; auriculis concaviusculis, aperturâ pallidè fuscâ.*

Var. γ . *T. pallidiore, vix reticulatâ.*

Hab. Island of Camiguing: found in a small pond. Var. β , Pasiguing, province of North Ylocos: on stones in a rapid river. Var. γ , Abulug, province of Cagayan: on stones in a large river.

A fine *Neritina*, very distinct from all the auriculated species

hitherto known. Its auricles are narrow, convex above, and hollow beneath, or in form of a short canal.

Operculum oval, flat above, flesh-coloured, and radiated from the summit to the anterior side with five to seven blackish lines; the anterior side bordered with a blood-coloured zone, enclosed by another pellucid zone; very fine striæ spring from the summit, and radiate to the anterior side in an opposite direction to the bands. Inferior surface less flat, pale rosy brown or reddish brown, as well as the teeth, which offer nothing particular, and which resemble those of the opercula of *Ner. pulligera* and other allied species. The operculum of var. β is of an uniform colour above, on account of its zones being confluent. That of var. γ is of a very pale green, with a circular stria, which divides its external surface in two parts almost longitudinally. This character is also observable upon the operculum of var. β , but very faintly. There is no trace of it upon the type.

*** Spinosæ, interdum muticæ (*Clithon*, Montfort).

11. *NERITA OLIVACEA*. *N. testâ ovato-globosâ, ventricosâ, crassâ, griseo-olivaceâ, anfractibus 2½, supernè depressiusculis; apice sub-converso, obtuso, laterali, in medio deroso; aperturâ extûs subquadratâ, intûs exalbidd, labio posticè rufescente, plano, margine crenato, et in medio vix arcuato.*

Long. 1.12; lat. 1.36; conv. 0.76 poll.

Hab. Ago, province of Pangasinan, island of Luçon: on stones in a rapid river.

This *Clithon* has sometimes a brownish zone posteriorly, with some faint reddish spots. The summit of the shell is corroded and excavated. Operculum of a *Clithon*, rosy white, spotted with red at the summit, and faintly marked with a circular streak in the centre of its external surface. The interior surface is reddish, convex, and flattened at the base; two teeth at the top, the upper one lamellated, elevated into an obtuse point; the second or inferior one circular and striated. Underneath this tooth there is a great depression.

12. *NERITA BICOLOR*. *N. testâ ventricosâ-ovatâ, crassiusculâ, sub suturâ depressiusculâ, strigis nigris et olivaceis longitudinalibus densè pictâ; apice eroso; aperturâ extûs subquadratâ exalbidd; labio plano, supernè calloso basi canaliculato, margine in medio arcuato, et obsoletè dentato; dente cardinali majori.*

Long. 1.04; lat. 1.20; conv. 0.76 poll.

Hab. Ago: in a mountain-stream.

Operculum of a *Clithon*, oval, solid, whitish, striated lengthwise in an oblique direction, and marked with a circular furrow from the summit to the posterior margin, ending in a slight notch; inferior surface furnished with a large, circular, slightly raised rib, prolonged in an obtuse angle at the posterior margin. Two teeth at the top: the upper one an oblique rosy plate terminated at the summit; the lower one circular, delicate yellow, enlarged at the summit, and striated lengthwise and across.

13. *NERITA INTERRUPTA*. *N. testâ ovato-semiglobosâ, apice valdè corrosâ et truncatâ, olivaceâ, lineolis luteis interdum interruptis creberrimis et fasciis latiusculis luteis transversis pictâ; aperturâ extûs semi-ovali, intûs luteâ; labio subsemilunari, plano-concavo, margine in medio arcuato, acuto, dente cardinali exserto.*

Lat. 0.96; conv. 0.64 poll.

Hab. Yba, province of Zambales, isle of Luçon: on stones in a rapid river.

The flat and greatly eroded summit does not allow the form and length of the shell to be ascertained with exactitude. It appears to me to have at most a whorl and a half faintly depressed below the suture.

Operculum very like that of *N. bicolor*, but of a yellowish white colour externally. On the inferior surface I observe that the upper tooth is stronger; the lower one annulated transversely, in a more distinct manner. The intermediary plate is more compressed and less sinuous at the margin, and the notch at the posterior part appears to me to be deeper.

14. *NERITA ANGULOSA*. *N. testâ ventricoso-globosâ, supernè depresso-planâ, subtûs angulosâ, olivaceâ, maculis luteis parvulis obsoletis notatâ; anfractibus duobus inæqualiter rugatis; supremo deroso-concavo, aperturâ subrotundatâ, anticè et posticè angustatâ, supernè et infernè dilatatâ; columellâ angustâ, medio concavâ, supernè callosâ, anticè tenuè denticulatâ, medio emarginatâ.*

Long. 0.72; lat. 0.92; conv. 0.60 poll.

Hab. Caşan, province of Misamis, island of Mindanao: on stones in a small stream.

Operculum oval, waved with grey on the anterior side, with a narrow circular furrow ending in a strong posterior notch: this furrow bounds a superior, obtuse and circular angle. The summit of an orange colour; internal surface bearing a curved rib in the centre, of greater or less width. Superior tooth yellowish and obtuse; the inferior yellowish white and substriated lengthwise; the intermediary plate between the two teeth of a citron colour, cut obliquely at the margin. The depression existing at the base of the lower tooth is of a flesh-colour approaching to cinnamon.

15. *NERITA CIRCUMVOLUTA*. *N. testâ globoso-subovatâ, dilutè fulvâ in roseo vertente, punctis luteolis anticè lineis nigris marginatis marmoratâ, zonis nigris remotis circumcinctâ; anfractibus duobus nigro-marginatis; supremo obtuso, decorticato; aperturâ albidâ; labio plano, supernè calloso, anticè ruguloso, et in medio arcuatim emarginato.*

Long. 0.72; lat. 0.84; conv. 0.68 poll.

Hab. ad Insulas Philippinas.

Operculum of a *Clithon*, oval, of a rosy white, with a broad, rather concave and central furrow; on the interior face of a pale yellowish colour, shaded with rose. One lamellated and pointed tooth near the summit, and an inferior one, which is circular, subcanaliculated in the centre, and striated transversely.

16. *NERITA SQUARROSA*. *N. testâ ventricosò-globosâ, interdum subovatâ, supernè depressâ et subangulatâ, epidermide squarrosâ, maculis rufescentibus angulatis confertis nigro seu olivaceo marginatis pictâ, apice rotundatâ, aperturâ extûs subquadratâ, intûs albido-cærulescente; labio suprâ lutescente, plano, anticè ruguloso, medio arcuato.*

Var. β . *T. subrubicundâ, nigro-fasciatâ.*

Var. γ . *T. roseo-purpurascente, albo-maculatâ, labio margine detrîto.*

Var. δ . *T. roseo-purpurascente, albo-maculatâ, nigrescente fasciatâ; labio detrîto.*

Long. 0·80 ad 0·84; lat. 1·04 ad 1·08; conv. 0·68 ad 0·76 poll.

Hab. Jimamailan, isle of Negros: on stones in a mountain-stream. Var. β , Ginijeran, isle of Negros: on stones in a sluggish river. Var. γ and δ , island of Burias.

Operculum of a *Clithon*, whitish or rather rosy externally, with one or two circular striæ in the centre; of a livid rose-colour, spotted with yellow on the interior. Two teeth: the first lamellated, pointed at the summit; the lower one circular, narrow, striated lengthwise and across, but faintly. Subapophysary canal spotted with livid rose, showing below two remote angles, but slightly raised.

17. *NERITA SOWERBIANA*. *N. testâ subglobosâ, tenuè striatâ nigro et albido alternatim fasciatâ; fasciis nigris albo-articulatis, albidis maculis nigro-marginatis anticè sagittatis ornatâ; anfractibus tribus, convexis; spirâ vix prominulâ, rotundatâ; aperturâ obliquè cinerâscente; labio subconvexo, lutescente, anticè denticulato arcuatoque.*

Var. β . *T. cinereo-lutescente, maculis sagittatis ut suprâ subzonatâ; ad suturam maculis arcuatis nigris ornatâ.*

Var. γ . *T. nigerrimâ, maculis triangularibus albidis adpersâ, ad suturam interdum subspinosâ.*

Var. δ . *T. nigerrimâ, maculis raris subpunctatâ, zonis duabus lutescentibus cinctâ, ad suturam subspinosâ.*

Long. 0·56 ad 0·60; lat. 0·64 ad 0·72; conv. 0·48 poll.

Hab. Sinait, province of North Ylocos, island of Luçon: on the stony bed of a small river. Var. β , γ and δ , island of Guimaras: found in a small stream on rocks.

Operculum of a *Clithon*, deeply hollowed with a circular stria in the centre, zoned transversely with bluish in the anterior portion of its external surface; the interior of a yellowish or livid rose-colour: upper tooth citron, short, obtuse, united to the lower one, which is smooth, circular, striated lengthwise and across by a short plate, which is subsinuuous anteriorly.

I see no difference among all the varieties which I unite to this Nerite, except those of colour. The characters of the operculum are the same.

I have very great satisfaction in dedicating this species to that scientific conchologist, Mr. G. B. Sowerby.

18. *NERITA MONTACUTI*. *N. testâ ventricosò-globosâ, suprâ medium spinis brevibus coronatâ, obliquè striatâ, lutescente, supernè*

et infrà medium zonis nigris lutescente maculatis pictà; supremà latiore; anfractibus tribus supernè depresso-planis; spirà depresso-convexà; aperturà dilatatà, rotundatà, albido-lutescente; labio angusto, medio concavo, margine denticulato, in centro arcuato.

Var. β . *T. olivaced, maculis lutescentibus adpersà, ultimo anfractu supernè convexiusculo, labio denticulato.*

Var. γ . *T. dilutè olivaced, maculis pallidioribus nigro anticè sagittatis marginatisque; ultimo anfractu supernè subconvexo, labio edentulo, integerrimo.*

Var. δ . *T. nigerrimà, punctis albis sparsis notatà; labio denticulato.*

Var. ϵ .? *T. fulvâ, nigrescente tinctâ, sub oculo et lumine punctulis pellucidis obsitâ; spinis extrorsum curvatis; ultimo anfractu basis costulâ notato; spirâ vix prominulâ.*

Long. 0.76; lat. 0.80 ad 0.88; conv. 0.60 ad 0.64 poll.

Hab. Island of Burias: on stones in a rivulet.

I consider it my duty to dedicate this Nerite to the learned conchologist Montagu, as a homage due to his talents.

19. NERITA DONOVANI. *N. testâ semiglobosâ, tenuè et densè striatâ, viridescente, lineis obliquis purpureo-nigrescentibus, equidistantibus undatis ornatâ; anfractibus tribus convexis, supra medium spinis incurvis armatis; apice deroso; aperturâ cærulescente, basi effusâ, angulosâ; labio angusto, supernè calloso, basi concavo, margine subrecto-denticulato; dente cardinali majori.*

Var. β . *T. ovatâ, nitidâ, maculis viridibus et purpurascentibus densè tessellatâ; spinosâ, ultimo anfractu supernè ascendente, basi costulâ transversâ notato; spirâ prominulâ.*

Long. 0.50; lat. 0.60; conv. 0.40 poll. Var. β , long. 0.56; lat. 0.60; conv. 0.44 poll.

Hab. Island of Guimaras: on stones in a small stream.

Whatever the difference of form and colour, it does not appear to me possible to distinguish these two shells otherwise than as varieties of the same type. Their operculum is unknown to me.

20. NERITA MICHAUDI, Récluz in Rev. Cuv. 1841. p. 315. No. 38.

Var. β . *T. tenui, lineolis nigris longitudinalibus rectis creberrimis, et maculis luteis lined nigrâ anticè cinctis concatenatis triserialibusque pictâ.*

Var. γ . *T. anfractibus supra medium spinis brevibus angustisque armatis.*

Hab. Bauang, province of Pangasinan, isle of Luçon: on small stones on the bank of a river.

21. NERITA PULCHELLA. *N. testâ subglobosâ, nitidâ, vix striatâ, luteo-viridescente, maculis nigris sagittatis et zonis æqualibus remotis nigris lutescentè articulatis ornatâ; spirâ nullâ; apice convexo; aperturâ semi-rotundâ, cærulescente; labio angusto, subconvexo, supernè calloso, anticè subrecto, denticulato; dente cardinali majori.*

Var. β . *Testâ sordidè purpurascente, albo punctatâ et zonis cæruleo-viridescantibus albo-maculatis cinctâ.*

Var. γ . *Testa purpurascens, maculis albis nigro sagittatis et zonis nigris albo-articulatis ornatâ.*

Var. δ . *Testa rubicundâ, punctulis albis, anticè obsoletè purpureo-nigrescentibus, anticè marginatis marmoratâ; labro crassiore.*

Long. 0.36 ad 0.40; lat. 0.44 ad 0.48; conv. 0.32 poll.

Hab. Sual, province of Pangasinan, isle of Luçon: in a small stream.

Operculum of a *Clithon*, yellowish white, marked with a fine circular streak in the centre: two teeth at the summit of the interior face; the upper one short, yellow; the lower one circular, yellow, striated lengthwise and across, sometimes dilated at the summit; the intermediary plate between the two teeth of a whitish colour.

Mr. Yarrell exhibited some coloured plates of a large work on the Mammalia of North America, by Mr. Audubon and Dr. Bachman.

December 13, 1842.

Prof. Rymer Jones in the Chair.

A letter from A. N. Shaw, Esq., Corresponding Member, dated Dhawar, October 14, 1842, was read. It announces that a young Tiger and a Bear, which that gentleman had presented to the Society, were in the possession of Sir Jamsetjie Jejubhoy, of Bombay, who had kindly undertaken to forward them to England free of expense.

Two letters from the Society's Corresponding Member, E. D. Dickson, Esq., were read. The first, dated Constantinople, October 2, 1842, announces that Mr. Dickson had forwarded as a present to the Society a collection of specimens, preserved in spirit, part of which was a donation from himself and part from H. J. Ross, Esq., Corresponding Member. The second letter is dated Tripoli, October 24, 1842; it acknowledges the receipt of letters, &c. from the Society, and states that another collection had been forwarded for the Society. Some of the specimens in this latter collection were procured by Mr. Ross at Samsoon, and the remainder by Mr. Dickson.

The following paper, by G. Newport, Esq., "On some new genera of the class *Myriapoda*," was then read:—

"The family *Geophilidæ* of Leach, composed of those little, gliding, wormlike Myriapodes so abundant in our gardens, and yet so imperfectly known to the scientific naturalist, includes at least two distinct genera, one of which only has hitherto been characterised. Dr. Leach himself, to whom we are indebted for the foundation of nearly all the scientific knowledge we possess of these animals, appears to have regarded one of the five native species with which he was acquainted as distinct from the others, and placed it accordingly in a division of his genus *Geophilus*, founding his divisions on the comparative length of the joints of the antennæ. These divisions, with the same distinguishing characters, have been retained by M. Gervais, who in 1837 published a monograph on the whole class, and added a third section to the genus *Geophilus*, composed of two species, one of which, *Geophilus ferrugineus*, had been described by Koch; and the other, *Geophilus maxillaris*, was then first described by M. Gervais as a new species. It is this division, added by M. Gervais, the *Geophili maxillares*, which I now propose to establish as a separate genus, under the name of *Mecistocephalus*, the characters of which, derived from the peculiarly elongated form of the head, are as distinctly marked as in any genus of this order.

"In a collection of *Myriapoda*, from the magnificent cabinet of the No. CXIX.—PROCEEDINGS OF THE ZOOL. SOC.

Rev. F. W. Hope, which that gentleman many months ago, in the most handsome manner, placed entirely at my control for the purpose of describing, I discovered a third species, brought to this country by the late Rev. Lansdowne Guilding, from the island of St. Vincent, which I immediately recognized as a new genus; and on examining the unarranged specimens of *Myriapoda* in the collections of the British Museum, which the head of the zoological department, J. E. Gray, Esq., has kindly permitted me to describe and arrange, I have since found two other species, both new to science, one of which was brought from India by — Elliot, Esq., but the locality of the other is unknown. The genus I am now about to propose will thus include five species, agreeing most accurately in their generic characters. They are all of them foreign to this country. The only native species which at all approaches to *Mecistocephalus* is the *Geophilus longicornis* of Leach, supposed by M. Gervais to be *Scolopendra electrica* of Linnæus, which constitutes Leach's second section of *Geophilus*. This I propose to separate as a distinct sub-genus, by the name of *Necrophlæophagus*, although its characters are not so distinctly marked as in the preceding. The name proposed for it is derived from its being mostly found under rotten wood, or under the rotten bark of trees.

"Before I proceed to characterize these genera, it may be well to remark, that the construction of the head in these, as compared with the other *Geophili* and the *Scolopendræ*, seems to throw much light on the number of parts which are included in this division of the body in the higher *Articulata*, and on the manner in which these parts are united; and although I do not intend on the present occasion to enter on the consideration of these structures, which I propose to do hereafter, it is necessary to state that I regard the head of the *Chilopoda* as formed of two compound moveable portions, the anterior of which, bearing the antennæ, I shall designate the *frontal segment*; and the posterior, which gives attachment to the large forcipated foot-jaws, which I regard as the analogues of the mandibles of insects, I shall call the *basilar segment*. Posterior to these there is a third part, which, although perfectly distinct in all the *Geophilidæ*, is united to the basilar in the *Scolopendræ* and higher genera of this order, forming a kind of cephalo-thorax or cephalo-prothorax. This I shall consider the second or *sub-basilar segment*.

"It is on characters derived from these parts that I now propose to establish the genera."

Class MYRIAPODA.

Order 1. CHILOPODA.

Family GEOPHILIDÆ, Leach.

Section A. *Geophili maxillares*, Gervais.

Genus *Mecistocephalus**, Newport.

Characters.—*Frontal segment* very narrow, elongated, four-sided, more than twice as long as broad, antennæ inserted on the frontal

* From μήκιστος, *longest*, and κεφαλή, *head*.

margin, subapproximated, three times as long as the frontal segment; joints obconic, rather elongated, slightly hairy; *basilar segment* quadrate, very short, and much narrower than the frontal, almost atrophied on the dorsal surface; *labium* and inferior surface of the basilar segment very large, quadrate, extending backwards beneath the sub-basilar segment, with its anterior margin slightly excavated; *mandibles* enlarged, straightened, and projecting, but curved and pointed at their apex, with the internal margin acute and denticulated, and the basilar joint encroaching on the dorsal surface of the basilar segment. *Sub-basilar* segment large, transverse, with the anterior margin straight, and the posterior angles rounded. Body gradually tapering; legs from forty-five to seventy pairs; posterior pair styliform.

Species 1. *Mecistocephalus ferrugineus*, Koch.

2. *Mecistocephalus maxillaris*, Gervais.

3. *Mecistocephalus punctifrons*, Newport.

Frontal segment and mandibles deeply punctured, with the basilar segment and labium dark chestnut; body testaceous, mandibles each with two large acute teeth; legs forty-nine pairs.

Length two inches three-tenths. India: — Elliot, Esq.

In the collection at the British Museum.

Frontal segment polished, with small scattered punctures; mandibles very strong, polished, and deeply punctured on the superior surface, with the internal margin acute, with two large sharp teeth; labium flattened, polished, with a longitudinal depression, and a few minute, scattered punctures; body gradually tapering, but broad and strong anteriorly; legs forty-nine pairs, broad, strong.

"I am uncertain whether this specimen had arrived at its full growth, the number of legs being less than in the other species. It may nevertheless have acquired its proper number since the species described by M. Gervais has but forty-six pairs, and I have ascertained most satisfactorily that the whole of the *Chilopoda* acquire very nearly their full complement of legs before they have attained to one half of their adult size."

4. *Mecistocephalus Guildingii*, Newport.

Frontal segment polished, with a few scattered punctures; sides and posterior angles rounded, ferruginous; mandibles quadridentated; basilar segment and labium polished, ferruginous, with a broad, longitudinal sulcus and deep punctures on the latter; body yellowish, testaceous; legs forty-nine pairs. Length one inch and a half.

Island of St. Vincent. Rev. Lansdowne Guilding.

In the cabinet of the Rev. F. W. Hope.

There are five specimens of this species, varying considerably in size, but agreeing most accurately in the number of their legs.

5. *Mecistocephalus punctilabium*, Newport.

Head, mandibles, labium and sub-basilar segment ferruginous; mandibles tridentated; body brownish-green, with the two posterior segments antennæ and legs ochraceous. Frontal segment and labium flattened, the latter deeply, and thickly punctured. Legs sixty-one pairs.

Length two inches. Country?

In the collection of the British Museum.

The frontal segment of this species is flattened and punctured, with the posterior margin straight, and the anterior somewhat rounded; the mandibles are smooth, polished, rather straightened, and rounded, with the internal margin less acute, with two or three very small teeth; labium flattened, polished, with large, numerous and deeply impressed punctures, and a longitudinal median sulcus, with a slight emargination; dorsal surface of the body with three longitudinal sulci; anal styles five-jointed; second and third joint short, but the fourth and fifth longer.

The characters of this species are less strongly marked than in others of this genus, and they seem to form a transition to those of the next genus. The anal styles are still very distinctly organs of locomotion, in which respect they resemble those of *Scolopendra* and *Cryptops*.

Sub-Genus *Necrophlæophagus**, Newport.

*Geophilus*** , Leach.

Geophili longicornes, Gervais.

Characters.—*Frontal segment* quadrate, a little longer than broad, with the angles obtuse; antennæ inserted on the front, sub-approximated, more than three times as long as the frontal segment, with the joints twice as long as broad, conic; *basilar segment* short, with the posterior margin much wider than the frontal; *mandibles* short, strong, with the internal margin rounded, toothless; *labium* broad, almost quadrate, with the border emarginated; *body* somewhat tapering; legs more than fifty pairs; preanal segment narrow, styles short.

Species *Necrophæophagus longicornis*, Leach.

Yellow, with the segments of the head, mandibles and labium dark ferruginous; antennæ hairy, four times as long as the frontal segment, with the three or four terminal joints smaller than the others; labium smooth, with minute punctures, subconic; anteriorly wide and almost straight, posteriorly rounded; legs yellow, fifty-five pairs, anal styles small, slightly hairy.

Length two and a half to three inches. Europe: very common.

I have retained Dr. Leach's original name to this species, which has been supposed by M. Gervais to be the *Scolopendra electrica* of Linnæus. But Linnæus's species is described as "*pedibus utrinque 70*;" while Leach's species, of which there are four specimens in the cabinet at the British Museum, besides ten collected by other persons, has at most only fifty-five.

Genus *Gonibregmatus*†, Newport.

Characters.—*Frontal segment* short, transverse, anteriorly pointed;

* From νεκρός, *dead*; φλοιός, *bark*; and φάγω, *to eat*.

† From γωνία, *angle*, and βρέγμα, *the fore part of the head*.

basilar segment very short, wider than the frontal; *antennæ* moniliform, approximated at their base, joints very short, with the terminal one slightly elongated; eyes absent; *mandibles* very slender, long, pointed, arcuate, toothless, compressed and twisted near their base; *labium* very short, transverse, with the anterior border slightly produced and emarginated; *labium internum* projecting, thick, folded, and formed for sucking; palpi with the terminal joints slender and acute; *sub-basilar segment* short, but larger than the basilar; body elongated, segments more than 160; legs inserted into little foveolæ in the lateral ventral plates; the two or three posterior segments of the body enlarged and tuberoso; anal styles small, not used in walking.

1. *Gonibregmatius Cumingii*, Newport.

Greyish ash-colour; frontal segment very convex, rounded posteriorly; mandibles blackish; labium smooth; all the segments of the body very short, convex; dorsal surface with numerous irregular longitudinal sulci; antepenultimate segment with the dorsal and ventral plates atrophied; anal styles slender, with their basilar internal margin carinated; anal scale convex, subcordate, posteriorly rounded with two thin marginal plates; legs 161 pairs, naked, claws black. Length $4\frac{3}{4}$ to 5 inches.

From the Philippine Islands. Mr. Cuming.

In the collection at the British Museum.

I have never seen the *Geophilus Walckenaeri* of Gervais, but from the description given of that species I strongly suspect that it ought to be included in this genus.

Mr. Gould then, at the request of the Chairman, exhibited some new species of the genus *Ortyx*, which he thus characterizes:—

ORTYX NIGROGULARIS. *Ort. vertice et corpore superiore splendide fuscis; strigâ nigrâ superciliari, a rostro usque ad occiput; et super hanc strigâ albâ; sub oculos lineâ albâ a rostro ad plumas auriculares, et per latera colli excurrente, gulamque nigram circumdante plumis pectoris et abdominis albis nigro marginatis angustè apud pectus, latè et distinctè apud abdomen, et sese squamatim ostendentibus; femoribus crissoque arenaceo-castaneis; plumis lateralibus in medio albis.*

Crown and all the upper surface rich brown; margins of the tertiaries and wing-coverts fawn-colour; these feathers are also crossed with indistinct zigzag lines, freckles, and blotches of black and blackish brown; primaries greyish brown; tail deep bluish grey, the centre feathers and the external margins of the remainder freckled with reddish brown and buff; a black stripe, commencing at the base of the bill, passes over the eye to the occiput; above this a stripe of white; below the eye a white line from the base of the bill to the ear-coverts, down the sides of the neck, and encircling the throat, which is jet black; feathers of the chest and abdomen white, margined with a zone of black; narrow on the chest, broad and distinct on the abdomen; giving the under surface a scaly appearance; flanks, thighs and under tail-coverts sandy chestnut, the centre of each of the flank-feathers white; bill black; feet flesh-white.

Total length, 8 inches; bill, $\frac{9}{16}$; wing, $4\frac{1}{4}$; tail, $2\frac{1}{4}$; tarsi, $1\frac{1}{4}$.

Hab. Mexico; locality unknown. In the collection of the Earl of Derby.

Remark.—This species is of the same form and nearly of the same size as *O. Virginiana*.

ORTYX PECTORALIS. *Ort. vertice et nuchâ nigrescenti-fuscis; lined angustâ albâ frontali super oculos et per nucham ductâ; plumis auricularibus, colli lateribus, et pectore nigris; gulâ albâ; abdomine, lateribus et crisso, cervinis; plumis lateralibus inferioribus, ad apices nigro alboque guttatis dorso superiore, humeris scapulisque castaneis, tectricibus alarum, et caudæ, tertiariis, et dorso imo, cinereo-fuscis; plumis omnibus corporis superioris cervino pallidè marginatis, et punctatis.*

Crown of the head and back of the neck blackish brown; a narrow stripe of white crosses the forehead, passes over the eye, and extends down the back of the neck below the occiput; ear-coverts, sides of the neck and chest, black; throat white; abdomen, flanks and under tail-coverts fawn-colour; the tips of the feathers on the lower part of the flanks spotted with black and white; the upper part of the back, scapularies and shoulders, chestnut brown; wing-coverts, tertiaries, back and upper tail-coverts greyish-brown; all the feathers of the upper surface margined and speckled with very light fawn-colour, which on the secondaries assumes the form of distinct bars; in addition to these marks the scapularies, secondaries, back and rump, are minutely freckled with brown; the strongly contrasted markings giving all the upper surface a bespangled appearance; primaries brownish-grey; tail-feathers bluish-grey; some of them freckled on the margin with buff; bill black; feet flesh-white.

Total length, 7 inches; bill, $\frac{1}{2}$; wing, 4; tail, $2\frac{1}{8}$; tarsi, $1\frac{1}{8}$.

Hab. Mexico; locality unknown. In the collection of the Earl of Derby.

Remark.—Of the same form, but smaller in size than *O. Virginiana*.

ORTYX CASTANEA. *Ort. fronte gulâque nigris; lined superciliari albâ obsoletâ usque ad occiput, et super hanc lined nigrâ vertice, nuchâ, dorso superiore, humeris, pectore, et lateribus saturatè castaneis; uropygio, tectricibusque caudæ castaneis nigro irroratis, fasciatis, et punctatis; plumis abdominalibus albis, nigro undatim fasciatis lateralibus, guttis albis suprâ nigro cinctis, ornatis; his notis omnibus lucidis.*

Forehead and throat black; an indistinct line of white runs over the eye to the occiput, above this another indistinct line of black; crown of the head, back of the neck, upper part of the back, shoulders, chest and flanks, deep rich chestnut; the feathers on the sides of the neck with a black stripe down the centre and an oblong patch of white down the outer web; the tertiaries and some of the scapularies margined with deep fawn-colour, bounded within by an indistinct line of black; these feathers are also crossed with indistinct bars and freckles of black; rump and upper tail-coverts rich chestnut, minutely freckled, barred and dotted with black; feathers on the

centre of the abdomen white, marked with strong zigzag bars of black, changing into spots of white, bounded above by black on the flanks, all these marks being very brilliant; eyelash dark olive; irides dark reddish hazel; bill black; legs yellowish white.

Total length, $8\frac{1}{2}$ inches; bill, $\frac{5}{16}$; wing, $4\frac{1}{2}$; tail, $2\frac{7}{8}$; tarsi, $1\frac{1}{4}$.

Weight $5\frac{1}{4}$ ounces and 20 grains avoirdupois.

Hab. South America; locality unknown. In my own collection.

Remark.—Rather larger in all its measurements than *O. Virginiana*. From the general appearance of this bird, Mr. Gould is led to believe that it may hereafter prove to be a variety of some other species, probably of *O. Virginiana*; at the same time its markings are so different and so decided in character that he has deemed it best to describe it provisionally, under a distinct appellation.

ORTYX (ODONTOPHORUS) STELLATA. *Ort. mas. gula et collo cinereis, plumis rufo marginatis alis, plumisque scapularibus castaneo, cervino, et nigro pulchrè pictis; caudæ tectricibus, rectricibusque lineis undulatis alternatim rufo-fuscis et nigris, ornatis, punctis, et guttis parvulis interspersis; pectore, abdomine, et crisso splendide rufo-castaneis plumis pectoris gutta parvula centrali alba angustè nigro ferè cincta, perpulchrè pictis.*

Fem. staturâ minore, et notis albis pectoralibus magis productis, et minùs conspicuis distinguendâ.

Male.—Naked skin before and behind the eye yellowish; bill black; crest rather lengthened and full; forehead and ear-coverts clouded chestnut, the former passing into reddish chestnut on the crown, and gradually brightening towards the occiput; throat and neck both before and behind grey, all the feathers margined with rufous; scapularies and wings (except the primaries) beautifully marked with rich chestnut, buff and black, the black predominating on the scapularies, which feathers are rendered very conspicuous by having a whitish buff line down the centre; the tertiaries also are marked with a bold edging of rich buff, bounded on the inner side by a well-defined band of black, which surrounds the feather, while the buff occupies the upper edge only; at the tip of all the wing-coverts is a triangular spot of buffy white; primaries blackish brown, marked on their outer edge with indistinct but regular bars of reddish brown; back and rump dull greyish buff, each feather minutely dotted and freckled with brown and black; tail-coverts and tail rufous brown and black, the markings and colour so disposed that neither predominate, being dispersed over each feather in alternate narrow zigzag lines, interspersed with minute dots and freckles; chest, abdomen and under tail-coverts rich rufous chestnut; the feathers of the chest with a small white mark in the centre, very nearly surrounded by a narrow irregular line of black, giving it a very sparkling appearance; feet and legs in the dried specimen horn-colour.

Female.—Differs in being smaller in size and in having the small white markings of the chest, being more lengthened in form and less

conspicuous than in the male; in all respects the colouring of the two sexes is generally similar.

	Male.	Female.
Total length	10 $\frac{1}{2}$ inches.	9 $\frac{1}{2}$ inches.
Bill	0 $\frac{3}{4}$ —	0 $\frac{5}{8}$ —
Wing	5 $\frac{3}{8}$ —	5 $\frac{1}{4}$ —
Tail	3 $\frac{1}{4}$ —	2 $\frac{1}{2}$ —
Tarsi	2 —	1 $\frac{3}{4}$ —

This species is about the size of the Common Partridge. The specimens from which the above descriptions were taken are in the British Museum, to which they were presented by Lord Stewart; they are said to be from Brazil.

Specimens of new species of the genera *Trochus* and *Turbo* were also exhibited, and were accompanied by the following descriptions by Lovell Reeve, Esq.

Genus TROCHUS.

TROCHUS ASTERISCUS. *Troch. testâ obeso-conicâ, viridescente, anfractuum margine squamoso-stellatâ, squamis, grandibus cavis, infimâ facie eximie serratâ, serris linearibus, parallelis, circulatim dispositis; umbilico tecto, basi roseo-tinctâ.*

Reeve, Conch. Syst., vol. ii. pl. 217. f. 3.

Alt. 1 $\frac{1}{4}$; diam. 1 $\frac{1}{8}$ poll.

Hab. — ?

This shell has the base of the columella stained with rose-colour, like the *Trochus rhodostoma*, Lamarck; there is no danger, however, of confounding it with that species; the under surface of the *Trochus asteriscus* is most elegantly serrated, the serræ ranging round with peculiar regularity; and the periphery of each whorl extends into large hollow spouted scales. The shell figured in 'Conch. Syst.,' at fig. 5 of the same plate, under the name of *Trochus pileolum*, appears, by a figure subsequently published in Delessert's 'Recueil de Coquilles,' to be the *Trochus fimbriatus* of Lamarck.

TROCHUS GEMMOSUS. *Troch. testâ parvâ, conoidâ, luteo et violaceo vividè variegatâ; anfractibus leviter convexis, superficie ubique granulatâ, granulis obtusis, quasi gemmosis; infimâ facie similiter ornatâ.*

Reeve, Conch. Syst., vol. ii. pl. 218. f. 9.

Alt. $\frac{3}{4}$; diam. $\frac{3}{4}$ poll.

Hab. — ? Mus. Stainforth.

This is a most lovely shell to look upon; it is richly variegated with violet and yellow, and the surface being obtusely granulated, gives it the appearance of being studded with gems.

TROCHUS HANLEYANUS. *Troch. testâ acutè conicâ, viridi, levisimè nodulosâ; anfractibus planiusculis, peripheriâ ultimi acutâ; infimâ facie roseo-tinctâ, minutissimè serratâ, serris regularibus, seriatim dispositis, umbilico parvo.*

Reeve, Conch. Syst., vol. ii. pl. 218. f. 11.

Alt. $1\frac{1}{2}$; diam. $1\frac{1}{4}$ poll.

Hab. —? Mus. Cuming.

By the above title I wish to keep in remembrance the name of my industrious friend Sylvanus Hanley, Esq.

TROCHUS MODESTUS. *Troch. testâ conoideâ, roseo-aurantiâ, tuberculiferâ, subsquamosâ; anfractibus convexis, tuberculis squamæformibus, irregularibus, in medio biserialim cinctis; umbilico tecto; basi aurantiâ.*

Reeve, Conch. Syst., vol. ii. pl. 218. f. 14.

Alt. $1\frac{5}{8}$; diam. $1\frac{3}{4}$ poll.

Hab. —? Mus. Cuming.

This shell, which is of a peculiar rose-tinted orange-colour, has each whorl encircled with a double row of irregular scale-like tubercles.

TROCHUS EXIMIUS. *Troch. testâ conico-pyramidali, pallidè carneâ, lineis transversis interruptis sparsim ornatâ; anfractibus supernè concavis, in medio depresso-planis, bifuniculatis, funiculis albinisque tessellatis; umbilico tecto.*

Reeve, Conch. Syst., vol. ii. pl. 218. f. 12.

Alt. $\frac{7}{8}$; diam. $\frac{3}{4}$ poll.

Hab. ad Payanam. Mus. Cuming.

Dredged from sandy mud at the depth of ten fathoms.

TROCHUS MELANOSTOMA. *Troch. testâ depresso-conicâ, cinereo-violaceâ, fauce nigerrimâ, anfractibus concaviusculis, marginibus acutis, infimâ facie circulariter tæniatâ; umbilico tecto.*

Reeve, Conch. Syst., vol. ii. pl. 218. f. 16.

Alt. $\frac{5}{8}$; diam. $\frac{3}{4}$ poll.

Hab. ad oras Novæ Hollandiæ.

The mouth of this shell is lined with a peculiarly black shining enamel.

Genus TURBO.

TURBO PULCHER. *Turb. testâ ovatâ, ventricosâ, multicostatâ, luteo-viridescente costis lineolis nigricantibus hic et ubique pictâ; anfractibus tumidis, ultimo valdè maximâ, costis interstitiisque profusè et tenuissimè serratis.*

Reeve, Conch. Syst., vol. ii. pl. 219. f. 3.

Alt. $2\frac{1}{4}$; diam. $1\frac{7}{8}$ poll.

Hab. —? Mus. Cuming.

The leading feature of this beautiful shell is, that the entire surface, both ribs and interstices, are very thickly and finely serrated.

TURBO TICAONICUS. *Turb. testâ ovato-turbinatâ, multicostatâ, luteo-viridescente, strigis nigerrimis transversim ornatâ; anfractibus rotundatis, ultimo sublatius voluto; costis irregularibus, latis et angustis, interstitiis tenuissimè serratis; umbilico parvo.*

Reeve, Conch. Syst., vol. ii. pl. 219. f. 6.

Alt. $2\frac{1}{8}$; diam. 2 poll.

Hab. ad insulam Ticao, Philippinarum. Mus. Cuming.

This shell was found by Mr. Cuming at the above locality in mud, at the depth of ten fathoms.

TURBO SQUAMIGER. *Turb. testâ ovato-turbinatâ, multisquamosâ, luteo et viridi variegatâ, anfractibus subhumidis squamis grandibus, cavis, seriatim dispositis, ubique cinctis.*

Reeve, Conch. Syst., vol. ii. pl. 220. f. 7.

Alt. $1\frac{3}{8}$; diam. $1\frac{1}{4}$ poll.

Hab. —? Mus. Cuming.

The *Turbo squamiger* may be immediately recognised, as being entirely covered with large vaulted scales, arranged in regular parallel transverse rows.

TURBO VARIABILIS. *Turb. testâ ovatâ, lævi, luteo- aut rubido-brunnescente variabilè variegatâ; umbilico tecto.*

Var. α. *Testâ luteo-rubellâ, fusco alboque variè nebulosâ et tæniatâ.*

Reeve, Conch. Syst., vol. ii. pl. 219. f. 2.

Alt. 2; diam. $2\frac{1}{8}$ poll.

Hab. ad insulam Capul, Philippinarum.

Var. β. *Testâ rosaceo-rubrâ, lineis tenuibus flexuosis albis, diagonaliter pictâ.*

Reeve, Conch. Syst., vol. ii. pl. 219. f. 1.

Alt. $1\frac{7}{8}$; diam. $1\frac{7}{8}$ poll.

Hab. ad insulam Capul, Philippinarum.

The general painting of these shells, which were found by Mr. Cuming at the above locality in deep water, varies considerably, some being richly clouded with brown and a warm yellow, whilst others are crossed with a number of fine white diagonal lines upon a deep crimson ground. They approach nearest to the *Turbo petholatus*, differing, however, in a very remarkable degree in the character of the painting above noted. The riband-like bands, which form a never-failing peculiarity in that species, are wanting, and so also is the green or yellow tinge of colour which runs round the columellar side of the mouth.

Descriptions, by Dr. L. Pfeiffer, of some new species of *Helicidæ*, collected by Mr. Bridges in the northern parts of Chile, were then read:—

BULIMUS BRIDGESII. *Bul. T. subperforatâ, oblongo-ovatâ, apice obtusâ, tenui, pallidè luteo-fulvescente, confertissimè et leviter decussatâ; suturâ mediocri, marginatâ; anfractibus 4 convexiusculis, ultimo spiram superante; aperturâ ovali, intus nitidè fulvidâ; peristomate simplice, late reflexo, intus albo, marginibus callo junctis, columellari perforationem fere occultante.*

Long. $11\frac{1}{2}$; diam. $5\frac{1}{2}$ lin.

From the town of Frierina (Huasco, Chile). Found under stones.

BULIMUS PACHYCHILUS. *Bul. T. subperforatâ, ovatâ, apice obtusâ, crassâ, albâ, longitudinaliter striatâ, lineis confertissimis transversis sub lente decussatâ; anfractibus $4\frac{1}{2}$ convexiusculis, ultimo $\frac{3}{2}$*

longitudinis subæquante; aperturâ integrâ, ovali, intus alba; peristomate latè incrassato, pallidè fulvescente, nitido, marginibus callo crasso junctis.

Long. $19\frac{1}{2}$; diam. 11 lin.

From La Questa de Arenas (Huasco, Chile). Found buried in sand.

BULIMUS RHODACME. *Bul. T. perforatâ, ovato-oblongâ, longitudinaliter striatâ, striis transversis obsoletis minutissimè decussato-subgranulatâ, albâ maculis et flammis pellucidis rubellis ornatâ, apice obtuso roseo; anfractibus 6 convexis, ultimo $\frac{1}{3}$ longitudinis subæquante; aperturâ oblongo-ovalî; peristomate simplice, recto margine columellari reflexo.*

Long. $7\frac{1}{2}$; diam. $2\frac{3}{4}$ lin.

From the town of Frierina (Huasco, Chile). Found under small Cacti.

BULIMUS TEREBRALIS. *Bul. T. rimato-subperforatâ, subulatâ, longitudinaliter rugulosâ, albidd, supernè fusco-cærulescente; anfractibus $10\frac{1}{2}$ planis, ultimo $\frac{1}{4}$ longitudinis vix superante, basi subcarinato; columellâ obsoletè plicatâ; aperturâ ovali intus albâ; peristomate simplice, margine dextro dilatato, columellari reflexiusculo, supernè carinæ affixo.*

Long. $10\frac{1}{2}$; diam. $2\frac{1}{4}$ lin.

From Coquimbo (Chile). Found on rocks and plants near the sea.

SUCCINEA ELEGANS. *Suc. T. ovato-oblongâ, tenui pellucidâ, lævisculâ, rubello-corned, strigis longitudinalibus, opacis, albis, rufo-marginatis ornatâ; anfractibus $5\frac{1}{2}$ planiusculis, ultimo spiram acutam vix superante; aperturâ ovali-oblongâ, intus nitidâ, concolore; peristomate simplice, margine columellari vix calloso.*

Long. 18; diam. $8\frac{1}{2}$ lin.

From the Questa de Arenas (Huasco, Chile). Found on a species of *Juncus*.

SUCCINEA REFLEXA. *Suc. T. ovato-oblongâ, tenui pellucidâ, nitidâ, minutissimè granulosâ, corneo-sulphureâ, strigis irregularibus interdum ramosis, rufis ornatâ; anfractibus 5 planiusculis, ultimo spiram vix superante; aperturâ ovali-oblongâ, intus albidd, obsoletè strigatâ; peristomate simplice, acuto, margine columellari tenuissimo, albo reflexo.*

Long. $19\frac{1}{2}$; diam. $8\frac{1}{2}$ lin.

From Pichidanque, near Coquimbo. Found on the leaves of *Pourretia coarctata*.

SUCCINEA VARIEGATA. *Suc. T. ovato-acutâ, solidiusculâ, longitudinaliter rugosâ, regulariter granulatâ, luted, maculis longitudinalibus et punctis nigricanti-rufis serialim pictâ; apice acuto; anfractibus $5\frac{1}{2}$ planiusculis, ultimo $\frac{1}{4}$ longitudinis subæquante; aperturâ oblongo-ovalî, intus nitidè albâ, strigis pellucidibus; peristomate simplice, acuto, margine columellari subcalloso.*

Long. 24; diam. $11\frac{1}{2}$ lin.

Valleys in the north of Coquimbo. Found in crevices of rocks.

" These three species, described under the name of *Succineæ*, belong to that group of *Helicæ* of which the well-known *Hel. gallinasultana*, Chemn., is the type. The shell having no columella is perfectly analogous to that of the genuine *Succineæ*, and we are informed by Mr. D'Orbigny's observations, that the animal of *H. gallinasultana* is also very similar to *Succinea* in its form and habits. Accordingly this species must be related to *Succinea*, and I believe that the species above described should not be separated from it, although we do possess but imperfect notions of their habits. Of one species it is noticed that it was found on a species of *Juncus*, probably in the vicinity of water.

" By the same reason (the analogy of shells) I have enumerated the *Bulimus Broderipii* and *Coquimbensis* among the *Succineæ* (in my 'Symbolæ ad Historiam Helicorum')."

The exhibition was resumed of hitherto undescribed shells contained in the collection formed by Mr. Cuming in the Philippine Islands, and the following descriptions of them, by Dr. J. H. Jonas, were communicated to the Meeting.

HELIX ZEUS. *Hel. testâ perforatâ, orbiculatâ, subdepresso-convexâ, rugis obliquis striisque spiralibus elevatis sculptâ; anfractibus 4½ convexis; ultimo medio angulato, supra carinam depresso, infrâque inflato; colore brunneo, lineis flavis ziczacformibus obliquis supernè pictâ, infernè rubrâ, fasciâ latâ fuscâ infra carinam ornatâ; aperturâ subtrapeziformi, fauce albâ, peritremate acuto, recto, supra umbilicum reflexo.*

Hab. ad insulam Mindoro, Philippinarum.

Altitudo, $1\frac{1}{8}$ poll; latit. $2\frac{1}{8}$ poll.

This species bears a great resemblance to *Hel. Otahaitana*. The rugulosity on the upper part are more elevated, as on the under side, where the regular concentric lines are more distinctly visible.

BULIMUS CALOBAPTUS. *Bul. testâ umbilicatâ, ovato-pyramidali, tenui, subdiaphanâ, nitidâ, rubrâ vel pallidâ, fasciis flavis undulosis longitudinaliter pictâ, striis incrementi subtilissimis spiralisque oculo nudo vix conspicuis decussatâ; anfractibus 5½ convexis, suturis appressis, ultimo dimidiam testæ partem ferè æquante; aperturâ ovali, intus albâ, marginibus reflexis, albis, sinistro umbilicum partim occultante.*

Longit. $1\frac{1}{2}$ poll.; latitudo, $\frac{5}{8}$ poll.

Hab. ad insulam Mindoro, Philippinarum.

In form this beautiful shell resembles *Bul. Myersii*, Müller.

Var. *a.* Ground-colour brownish red and shining; the longitudinal zigzagged stripes are of a golden yellow colour, and on the last volution they are interrupted by a brown transverse line.

Var. *b.* Ground-colour pale yellow; the longitudinal stripes as in Var. *a.* No transverse line on the last volution.

BULIMUS BALANOIDES. *Bul. testâ imperforatâ, ovatâ, albâ, epidermide flavâ, vittis spadiceo-rufis cinctâ; anfractibus senis convexius-*

culis, ultimo ceteros vix æquante, basi viridi; aperturâ ovatâ, intus albâ, peritremate incrassato, reflexo, albo, fusco-marginato; columellâ rectâ.

Longit. $1\frac{1}{2}$ poll.; latit. $\frac{7}{8}$ poll.

Hab. ad insulam Mindoro, Philippinarum.

This shell bears great resemblance to the *Bul. ovatus*. The body-whorl has three brownish bands, and the others have two, one in the middle and the second on the suture; this last band is interrupted by the epidermis, so that it seems as if this band was sprinkled with red and yellow spots. The base of the last whorl is of a green colour where the columella is reflected.

BULIMUS APLOMORPHUS. *Bul. testâ imperforatâ, ovato-conoideâ, tenuissimè striatâ, nitidâ albâ, epidermide luteâ; anfractibus senis convexis, ultimo spirâ paululûm breviorè, fasciis tribus rufo-fuscis circumdatâ; unâ angustâ ad suturam, alterâ latiorè in medio, tertid circa columellam; aperturâ ovatâ, albâ, peritremate reflexo albo, columellâ rectâ.*

Longit. $1\frac{5}{8}$ poll.; latit. $\frac{7}{8}$ poll.

Hab. ad insulam Mindoro, Philippinarum.

This shell is like *Bul. guimaracensis*, but more slender, and the proportions of the volutions differ.

BULIMUS SIMPLEX. *Bul. testâ imperforatâ, ovato-conoideâ, tenui, diaphand, candidâ, epidermide tenuissimâ, viridi, supernè evanescente; anfractibus quinis convexis, subtiliter striatis, lineisque spiralibus oculo armato solummodò conspicuis circumdati, suturis haud marginatis; ultimo anfractu dimidiam testæ partem ferè æquante, obtusè angulato; aperturâ ovatâ, peritremate acuto, sub-reflexo, intus limbato; columellâ filiformi rectâ.*

Longit. 1 poll.; latit. $\frac{3}{4}$ poll.

Hab. ad insulam Mindoro, Philippinarum.

Though this *Bulimus* on the first sight bears great resemblance to the *Bul. bullula*, it is still very distinct.

Mr. Fraser then characterized two new species of Birds from Western Africa. :—

STRIX POENSIS. *Strix rostro cærulescenti-corneo; facie albâ, disco plumarum confertissimarum, texturâ holosericâ, circumdatâ,—illis anticè positis albis, posticis flavis, ad basem pallentibus,—illis autem genarum apicibus nigris; corpore supernè, e cervino flavo, albo et purpureo crebrè adperso, plumarum omnium scapis bis terve albo guttatis cum spatîo nigro inter singulas guttas; colli lateribus flavis, et, ut apud dorsum, guttatis; primariis et secundariis ferè obsoletè fasciatis, et sordidè purpureo alboque, sparsè guttatis; caudâ vix furcatâ, rubescenti-flavâ, fusco-fasciatâ, et sparsè albo guttatâ; corpore subtus femoribusque flavescenti-albis guttis triangularibus nigrescentibus, sparsè notatis tarsis lanugine brevi, albâ, ferè ad digitos sparsè tectis,—his nigris, pilis albis obsitis.*

Hab. Fernando Po.

The specimen from which the above description was taken was procured at Clarence, Fernando Po, and was the only one that had been seen by the oldest colonist at that place.

PITTA PULIH. *Pitta notā nigra a mandibulæ superioris basi, super verticem usque ad collum eductā, et utrinque notā latā cervini marginatā; plumis auricularibus et colli lateribus nigris; dorso, tectricibusque alarum majoribus metallicè viridibus; tectricibus alarum minoribus, tectricibusque caudæ singulis, ad apices pallidè cæruleis, instar cyani; primariis, secundariis, rectricibusque caudæ nigris; primariis tertiā, quartā, quintā et sextā per medium albo fasciatis; gula ferè albā corpore subtus fusciscente-aurantiaco, rubido apud abdomen imum leviter tincto; rostro, tarsis, digitis, unguibusque apparenter rubris.*

Hab. apud pagum, Port Lokkoh dictum, Sierra Leone.

Mr. Fraser observed that considerable interest was attached to this bird, for which he was indebted to Robert Clarke, Esq., Senior Assistant Colonial Surgeon at Sierra Leone—not only on account of its being a new species of a somewhat restricted group, but on account of its habitat, all the hitherto recorded species of *Pitta* being from continental India, the Indian islands, and Australia.

Mr. Thomson, who originally procured the bird, observes in a note, that the *Pulih*, or Mocking Bird, is only found in the Timneh country; that its note is exceedingly sweet, and when a Timneh would pay an orator or poet the greatest compliment, they say, "He is a perfect *Pulih*."

It is most closely allied to *Pitta brachyura*, Auct.; but differs from that bird in having the bill and feet red, a band over the eye, which is tawny, instead of olive brown; in the uniform colouring of the primaries, secondaries and tail feathers, the two former not being tipped with white, nor the latter with green; and finally, in the absence of the red vent.

The following "Additional Measurements of the Blood-Corpuscles or Red Particles of Mammalia and Birds," by George Gulliver, Esq., F.R.S., were read:—

"Many observations are yet required to complete our knowledge of the comparative anatomy of the blood-corpuscles. The present contribution contains an account of some observations which I have made since the publication, in the English version of Gerber's Anatomy, of my Tables of Measurements of the Blood-corpuscles of Mammalia and Birds.

"In the present, as in the former tables, the measurements are all expressed in vulgar fractions of an English inch, and as the numerator is invariably 1, it is omitted throughout, the denominators only being printed. In each instance the measurements of the common-sized discs are first set down; a space is then left; the small and large-sized discs are next noted; and lastly the average, deduced from the preceding numbers, is placed beneath the line. The long diameter of the oval blood-discs is denoted by L.D. and the short diameter by S.D. Except when noted to the contrary, the blood

was obtained from living and adult animals. The measurements of the nuclei were taken after their exposure, by the aid of dilute acetic acid on the corpuscles, which it is necessary to state, since I have elsewhere* shown that the form and dimensions of the nucleus are materially affected by different treatment.

MAMMALIA.

FERÆ.

Indian Badger (*Arctonyx collaris*,
F. Cuv.).

4000

3555

3200

6000

2666

3609

Blood from the vena cava after
death.

Malay Sun Bear (*Helarctos Ma-
layanus*, Horsf.).

3555

3368

5000

2900

3562

Blood from a prick of the lip.

Red Puma (*Felis unicolor?* Traill).

4572

5333

3800

4481

Blood from a prick of the skin
of the arm.

Fœtal Kitten, half an inch long
(*Felis domestica*, Briss.).

2666

2000

3000

1714

2233

Blood from the heart and from
the navel-string immediately after
death. The average size of the
corpuscles is about twice that of
the corpuscles of the mother. The
corpuscles of the fœtus contained
distinct nuclei, much resembling
lymph globules. The size only of
the nucleated corpuscles is above
given; there were several much
smaller which presented no nuclei.
See fig. cxlviii. B, in Dr. Willis's
Translation of Wägnér's Physio-
logy, page 240.

Stoat (*Mustela Erminea*, Linn.)

4000

6000

3200

4155

Blood from the heart soon after
death.

RUMINANTIA.

Camel (*Camelus Bactrianus*).

L.D.

S.D.

3555

6000

3000

4000

8000

2400

4572

3123

5876

Thickness of the discs.

15210

Pale globules.

3200

4000

3000

3348

* See Contributions to Minute Anatomy, Lond. and Edinb. Phil. Mag.
for August 1842; and Remarks on the Shape of the Blood-Corpuscles of
Oviparous Vertebrata, Proceedings of the Zool. Soc. August 9, 1842.

Blood from a prick of the upper lip.

The measurements of the corpuscles of the other *Camelidæ* are given in the Appendix to Gerber's Anatomy.

Red Deer (*Cervus Elaphus*, Linn.).

4360
4615
6000
3200
—
4324

Fœtus of Fallow Deer (*Cervus Dama*, Linn.).

4000
3426
3200
6000
2400
—
3478

Blood from the heart, Jan. 2, 1842, a few hours after death. The fœtus measured $4\frac{1}{4}$ inches from the forehead to the buttocks. The corpuscles exhibited no distinct nuclei when treated with water or vegetable acids. The average size of the corpuscles from the uterine veins of the mother was $\frac{1}{4.515}$ th of an inch. In another fœtus examined Jan. 12, and measuring six inches, the corpuscles did not differ appreciably from those of the first fœtus.

Ibex (*Capra Caucasica*).

Corpuscles slightly smaller than those of the Goat. The measurements are detailed in the Proceedings of the Zool. Soc., August 9, 1842.

Indian Buffalo (*Bos frontalis*, Lambert).

4570

6000

3200

—
4299

Blood from a vein of the ear.

RODENTIA.

Jerboa (*Dipus Ægyptius*, Hemp. and Ehren.).

4570
5333
3200
—
4172

Blood from a vein of the ear.

Common Porcupine (*Hystrix cristata*, Linn.).

3200
3555
4572
2666
—
3369

Blood from a prick of the skin of the nose.

Common Hare (*Lepus timidus*, Linn.).

4000
3368
3200
5000
2900
—
3560

Blood from the heart two hours after death.

MARSUPIATA.

Mauge's Dasyure (*Dasyurus Maugei*, Geoff.).

4365
4000
5000
3200
—
4034

Blood from a vein of the ear. The corpuscles scarcely differ in

size from those of the Viverrine Dasyure, and agree in form with the corpuscles of the other marsupial animals, originally described by me in the Dublin

Medical Press, Nov. 27, 1840; Annals of Natural History, Dec. 1, 1840; Lond. and Edinb. Phil. Mag. of the same date.

AVES.

RAPACES.

Angola Vulture (*Vultur Angolensis*, Lath.).

L.D.	S.D.
1777	3200
1600	3000
2133	3800
1331	2666
1684	3166

OMNIVORES.

Common Jay (*Garrulus glandarius*, Flem.).

L.D.	S.D.
2266	4000
2000	3555
2400	5333
1714	3200
2064	3878

Nuclei.

4000	10666
------	-------

Blood from the heart quickly after death.

Rook (*Corvus frugilegus*, Linn.).

L.D.	S.D.
1895	3200
1777	
2286	3555
1714	2900
1894	3196

Nuclei.

5333	10666
4000	8000
4572	9140

Blood from the heart a few hours after death.

Magpie (*Corvus Pica*, Linn.).

L.D.	S.D.
2000	3555
1895	3200
2286	4000
1714	2900
1953	3365

Thickness of the discs.
11600

Nuclei.

4570	10666
4000	
5333	14000
3500	9600
4245	11138

Blood from the heart an hour after death.

Red Winged Starling (*Sturnus predatorius*, Wilson).

L.D.	S.D.
2133	4572
2666	5333
1777	3200
2133	4175

Blood from the heart seven hours after death.

INSECTIVORÆ.

Pied Wagtail (*Motacilla alba*, Linn.).

L.D.	S.D.
2286	3555
2666	4570
1777	3000
2182	3600

Nuclei.

4000	10666
------	-------

Blood from the heart soon after death.

Sedge Warbler (*Sylvia Phragmites*, Bechs.).

L.D.	S.D.
2600	3555
1895	
2666	4570
1684	2900
2003	3550

Blood from the heart nine hours after death. The corpuscles are notably larger than those of most of its congeners.

GRANIVORÆ.

Indigo Bird (*Fringilla cyanea*, Wilson).

L.D.	S.D.
2286	3555
2000	
2900	5333
1714	3000
2144	3741

Blood from a vein of the pinion.

Greenfinch (*Fringilla Chloris*, Temm.).

L.D.	S.D.
2286	3555
2460	4570
2000	3000
2232	3600

Nuclei.

4000	10666
------	-------

Blood from the heart a few minutes after death.

Blue Titmouse (*Parus cæruleus*, Linn.).

L.D.	S.D.
2400	4570
2286	4000

2666	5333
2000	3200

2313	4128
------	------

Nuclei.

5333	12000
4000	9600

4571	10666
------	-------

Blood from the heart quickly after death.

Longtailed Titmouse (*Parus caudatus*, Linn.).

L.D.	S.D.
2286	4570
1895	
2900	
1777	

2136

Nuclei.

4800	10666
------	-------

Blood from the heart twenty-one hours after death. There were several circular discs, about $\frac{1}{3000}$ th of an inch in diameter. Many of these had an oval nucleus, and the circular shape of the discs was perhaps a post-mortem change.

Skylark (*Alauda arvensis*, Linn.).

L.D.	S.D.
2286	4570
2000	4000
2400	5333
1895	3200
2125	4128

Nuclei.

4000	12000
------	-------

Blood from the heart twelve hours after death.

Pine Grosbeak (*Loxia enucleator*, Linn.).

L.D.	S.D.
2286	4267

2900	5333
1777	3200
2247	4083
Blood from a vein of the pinion.	
Hawfinch (<i>Loxia coccothraustes</i> , Temmm.).	
L.D.	S.D.
2000	4000
2460	4800
1777	3000
2042	3790
Thickness of the discs.	
9141	
Nuclei.	
4570	10666
Blood from a vein of the pinion.	
ZYGODACTYLI.	
Cuckoo (<i>Cuculus canorus</i> , Linn.).	
L.D.	S.D.
2000	3555
2400	4570
1777	3000
2028	3600
Blood from the heart twenty-six hours after death. There were many circular discs, perhaps from the blood being rather stale. These were about $\frac{1}{2900}$ th of an inch in diameter.	
CHELIDONES.	
Common Swift (<i>Cypselus Apus</i> , Flem.).	
L.D.	S.D.
2000	3555
1895	
2460	4570
1714	2900
1982	3550
Nuclei.	
4000	10666
Blood from the heart a few minutes after death.	

COLUMBÆ.	
Partridge Pigeon (<i>Columba montana</i> , Lath.).	
L.D.	S.D.
2286	3555
2666	4572
1895	3200
2239	3692
Nuclei.	
5333	12000
Pale globules.	
3200	
Blood from a vein of the pinion.	
GALLINÆ.	
Lineated Pheasant (<i>Phasianus lineatus</i> , Jard.).	
L.D.	S.D.
1777	3200
2000	
2133	4000
1600	3000
1855	3348
Nuclei.	
4570	9166
Blood from a vein of the pinion.	
Mountain Partridge (<i>Tetrao Caucasica</i> , Pall.).	
L.D.	S.D.
1895	3555
1777	3200
2666	4570
1600	2900
1923	3456
Nuclei.	
4570	9166
Blood from a vein of the pinion.	
CURSORES.	
Ostrich (<i>Struthio Camelus</i> , Linn.).	
Corpuscles slightly larger than those of the Rhea. The measurements are detailed in the Proc. Zool. Society, October 11, 1842.	

GRALLATORES.
Common Snipe (*Scolopax Gallinago*, Linn.).

L.D.	S.D.
2286	4000
2133	3200
2666	4800
1777	3000
2170	3622

Blood from the heart twenty-four hours after death.

PALMIPEDES.
Mandarin Duck (*Anas galericulata*, Gmel.).

L.D.	S.D.
2000	3555
1777	

2400 4000

1714 2900

1937 3424

Blood from the jugular vein about ten hours after death.

Common Gull (*Larus canus*, Linn.).

L.D.	S.D.
2000	3555

1895

2400 5333

1714 3200

1973 3839

Nuclei.

3555 10666

Blood from a vein of the pinion.

A very valuable collection of specimens from South Africa, presented by the President of the Society, the Earl of Derby, was laid before the Meeting. It consisted of seventy-one Bird-skins and nineteen Quadrupeds, among which were skins of an adult Hippopotamus and two-horned Rhinoceros, together with the following rare Antelopes:—*Catoblepas Gorgon*, male and female; *Catoblepas Gnu*; *Antelope ellipsiprymnus*, Ogilby; *Ant. melampus*; *Ant. lunata*; *Ant. Caama*, adult and young; *Ant. equina*, male and female; *Ant. oreotragus*; and *Ant. pediotragus*.

December 27, 1842.

Richard Owen, Esq., Vice-President, in the Chair.

Various specimens preserved in spirit, presented by H. Pointer, Esq., were exhibited.

Numerous specimens, preserved in spirit, presented by E. D. Dickson, Esq. and H. J. Ross, Esq., were also exhibited. They were collected by these gentlemen, Corresponding Members of the Society, at Trebezond, Erzerroom, and Samsoon.

Descriptions by Mr. Lovell Reeve of new species of shells figured in the 'Conchologia Systematica,' were read.

GENUS DENTALIUM.

DENTALIUM LONGITRORSUM. *Dent. testâ carneâ, tenui, glaberrimâ, subpellucidâ, longissimâ, arcuatâ, margine acuto.*

Reeve, Conch. Syst., vol. ii. pl. 130. f. 6.

Long. $4\frac{3}{4}$; diam. $\frac{5}{16}$ poll.

Hab. —? Mus. Cuming.

This beautiful pink horny-looking shell far exceeds any hitherto described species in length.

VERMETUS.

VERMETUS EBURNEUS. *Verm. testâ eburnâ, subobesâ, laxè volutâ, longitudinaliter costatâ, costis distantibus, subobsoletis.*

Reeve, Conch. Syst., vol. ii. pl. 152. f. 2.

Long. $3\frac{1}{16}$; diam. $\frac{7}{16}$ poll.

Hab. —? Mus. Cuming.

PARTULA.

PARTULA INFLATA. *Part. testâ obeso-conicâ, transversim tenuissimè striatâ, albidd, epidermide luteo-fusca indutâ; anfractu ultimo angulato-inflato, umbilicato; aperturâ subquadratâ, labro planissimè expanso.*

Reeve, Conch. Syst., vol. ii. pl. 175. f. 11 & 12.

Long. $\frac{7}{8}$; diam. $\frac{5}{8}$ poll.

Hab. —?

Chiefly remarkable on account of the ventricose inflation of the last whorl.

TRUNCATELLA.

TRUNCATELLA SCALARIFORMIS. *Trunc. testâ elongato-cylindrâ, luteâ, anfractibus rotundatis, costellis minutis ubique cingulatis; aperturâ rotundâ, labro simplici, acuto.*

Reeve, Conch. Syst., vol. ii. pl. 182. f. 6.

Long. $\frac{1}{4}$; diam. $\frac{1}{12}$ poll.

Hab. ad insulam Annaa, in Oceano Pacifico.

A number of these little shells were found by Mr. Cuming at the roots of palms on the sea-shore.

PYRAMIDELLA.

PYRAMIDELLA CINCTA. *Pyram. testâ conico-acuminatâ, albâ, anfractibus levibus, zonâ olivaceo-fusca, conspicuâ, in medio cinctis; aperturâ oblongo-ovatâ, labro simplici, acuto.*

Reeve, Conch. Syst., vol. ii. pl. 207. f. 2 & 4.

Long. $\frac{3}{4}$; diam. $\frac{5}{16}$ poli.

Hab. —? Mus. Cuming.

A white, sharply acuminate shell, surrounded with a single, clear, broad, olive-brown belt.

PYRAMIDELLA GLANS. *Pyram. testâ cylindraceo-conicâ, bicoloratâ; anfractibus longitudinaliter striatis, infernè albis, supernè olivaceo-viridibus; aperturâ rotundato-ovali.*

Reeve, Conch. Syst., vol. ii. pl. 207. f. 1.

Long. $\frac{9}{16}$; diam. $\frac{1}{4}$ poll.

Hab. —?

This is a small dumpy-looking shell, of which the whorls are just one half white and the other half dark olive-green.

TURBINELLUS.

TURBINELLUS IMPERIALIS. *Turb. ovato-turbinatâ, subtrigona, epidermide crassâ, fibrosâ, indurâ; transversim lirâtâ, liris angustis, subdistantibus, lirâ minutâ interveniente; anfractibus supernè angulatis, tuberculis flexuosis squamæformibus coronatis; anfractu ultimo prope basin aliis subsimplicioribus cingulato; columellâ rubido-fusca, politâ, irregulariter plicatâ; labro undulato, leviter expanso.*

Reeve, Conch. Syst., vol. ii. pl. 229. f. 4.

Long. $3\frac{1}{2}$; diam. $2\frac{1}{4}$ poll.

Hab. —? Mus. Cuming.

The noble diadem of flexuous scale-like tubercles with which this shell is crowned, renders it eminently distinct from its congener the *T. cornigerus*, in which they are of a solid stunted growth. The enamelling of the columella is also remarkable, being always of a very peculiar chocolate-brown colour.

TURBINELLUS VEXILLULUM. *Turb. testâ trigono-turbinatâ, albâ, lineis cæruleis, et interdum roseis, vividè cingulatâ, anfractibus subtrigonis, in medio valdè tuberculatis; columellâ triplicatâ, plicis parvis; canali brevissimo nigerrimo-tincto.*

Reeve, Conch. Syst., vol. ii. pl. 229. f. 1.

Long. $1\frac{3}{4}$; diam. 1 poll.

Hab. —?

This beautiful shell, which approximates to the *T. aplustre*, is vividly lined across with very deep blue, and between every two blue lines is a pink one, presenting an almost artificial contrast of colour.

PLEUROTOMA.

PLEUROTOMA SPECIOSA. *Pleur. testâ acutè turrîtâ, transversim subtilissimè funiculatâ; cœruleo-albâ, funiculis pallidè ochraceis; anfractibus in medio eximè gemmatis, infernè cōvexis, superne leviter concavis; canali gracili, vix elongato.*

Reeve, Conch. Syst., vol. ii. pl. 233. f. 5; Conch. Icon. *Pleurotoma*, pl. 2. f. 9.

Long. $2\frac{1}{2}$ poll.

Hab. — ?

This very chaste shell approaches somewhat in form to the *Pleurotoma carinata*, Gray, Griff. Cuv. An. King. (*Pl. Kieneri*, Doumet); it is of a pale bluish ground, delicately corded and beaded with bright ochraceous yellow. I only know of two specimens, one in the collection of the Rev. Mr. Stainforth, the other in that of the British Museum, purchased at the recent sale of Mr. Inwood's shells.

PLEUROTOMA BECKII. *Pleur. testâ oblongâ, cylindraceo-attenuatâ, apice acuto; sexangulatâ, anfractibus ad angulos longitudinaliter tuberculatis; olivaceo-fuscâ, tuberculis tantum albis; columellâ et aperturâ fauce fuscâ; canali brevissimo.*

Reeve, Conch. Syst., vol. ii. pl. 234. f. 11; Conch. Icon. *Pleurotoma*, pl. 2. f. 10.

Long. $\frac{7}{8}$ poll.

Hab. ad insulam Luçon, Philippinarum.

I dedicate this shell with much pleasure to my friend Dr. Beck, curator of that noble patron of conchological science, the King of Denmark. It was found by Mr. Cuming in the locality above cited under stones at low water. The snowy-white tubercles which ornament this brown six-angled shell at the several angles are very characteristic.

COLUMBELLA.

COLUMBELLA PHILIPPINARUM. *Col. testâ conico-turbinatâ, acuminatâ, albâ, fusco profusè et minutissimè undulatâ; anfractibus superne subangulatis, ultimo basin versus striato, striis profundis; aperturâ oblongâ, angustâ; labro subincrassato, fauce striatâ.*

Reeve, Conch. Syst., vol. ii. pl. 257. f. 9.

Long. $\frac{1\frac{1}{2}}{16}$; diam. $\frac{9}{16}$ poll.

Hab. — ?

Mr. Cuming has selected two varieties of this shell, but they are not of sufficient importance to require especial notice.

BUCCINUM.

BUCCINUM ELEGANS. *Bucc. testâ ovato-conicâ, acuminatâ, ubique subtilissimè nodulosâ et liratâ, interdum longitudinaliter leviter costatâ; luteo-albâ, columellâ, labro, et canali vividè aurantiis; aperturâ subquadrato-ovali, fauce valdè striatâ; columellâ paululàm excavatâ, labro serrato.*

Reeve, Conch. Syst., vol. ii. pl. 268. f. 3.

Long. $1\frac{1}{2}$; diam. $\frac{3}{4}$ poll.

Hab. California.

This very beautiful and distinct species may be easily recognised

by its bright orange mouth. The entire surface of the shell is very finely nodulated.

BUCCINUM PYROSTOMA. *Bucc. testd ovato-conicd, lacted, ubique cancellatd, anfractibus convexis, ultimo paululùm umbilicato; aperturd ovatd, fauce striatd, vividè rubrà.*

Reeve, Conch. Syst., vol. ii. pl. 268. f. 1.

Long. $\frac{3}{4}$; diam. $\frac{3}{8}$ poll.

Hab. —?

A small species belonging to the genus *Phos* of De Montford, remarkable from having a deep cornelian red mouth, whilst every other part of the shell is milk-white.

EBURNA.

EBURNA JAPONICA. *Eburn. testd ovato-conicd, apice vix acuto, lævi; anfractibus convexis, maculis fulvis, grandibus, regularibus, biserialim cinctis, interstitiis maculis parvis regularibus, diagonaliter dispositis, ornatis; umbilico parvo, profundo.*

Reeve, Conch. Syst., vol. ii. pl. 271. f. 1.

Long. $2\frac{1}{4}$; diam. $1\frac{1}{4}$ poll.

Hab. ad oras Japoniæ; Siebald.

This shell is distinguished by the great regularity of the spots; the upper and middle portions of the whorls are encircled with a band of large rhomboidal spots, whilst the spaces below and between them are filled with small triangular-like spots, arranged across in regular diagonal rows.

TEREBRA.

TEREBRA PRETIOSA. *Ter. testd longissimo-subulatd, luteolâ, fusco partim tessellatd; anfractibus tricenis, supernè lævibus, uniserialim serratis, infrâ arcuato-striatis, striis numerosis, profundis; canali subflexuoso.*

Reeve, Conch. Syst., vol. ii. pl. 274. f. 2.

Long. $5\frac{9}{16}$; diam. $\frac{1}{2}$ poll.

Hab. —?

This extraordinary shell, consisting of thirty whorls, exceeds five inches and a half in length, whilst it barely exceeds half an inch in breadth at the broadest part. It is I believe unique, in the collection of the Rev. Mr. Stainforth.

Mr. Fraser exhibited a specimen of the *Galago Senegalensis*, procured at Cape Coast, Western Africa, and a new species of Shrew from Fernando Po, which he characterized as follows:—

SOREX (CROCIDURA) POENSIS. *Sor. obscurè fuscus, corpore subtùs cinereo, pedibus nigrescentibus; auribus parvulis, distinctis; caudâ corpore breviori pilis obscuris adpressis, et setis longioribus adpersis.*

	unc.	lin.
Longitudo ab apice rostri ad caudæ basin....	3	3
———— caudæ	1	10
———— tarsi digitorumque	0	6
———— ab apice rostri ad basin auris	0	10

Hab. Clarence, Fernando Po.

This species somewhat resembles the *Sorex varius* of Smuts, but is of a deeper hue. The upper parts of the body are of a deep brown colour, rather indistinctly variegated with greyish; the body beneath is grey, but slightly washed, as it were, with dirty yellow. The ears are distinct, that is, not hidden by the fur, as in *S. tetragonurus* and its allies, and the tail has long bristly hairs interspersed with the short adpressed fur, as in the subgenus *Crocidura*, Wägler.

The specimen was taken in a trap baited with flesh, on the elevated land of Point William.

Mr. Fraser observed that the specimen exhibited of *Galago Senegalensis* was shot at Cape Coast, Western Africa, in a tamarind tree, near the top of which he found its nest: this was composed of loose leaves arranged in the fork of a branch. The eyes were large and prominent, and the movements of the animal were slow, and consequently very unlike the true Lemurs.

Specimens of the *Galago Alleni* and *G. Maholi* were placed on the table for comparison.

A paper was then read, from M. Petit de la Saussaye, containing descriptions of new species of Shells, belonging to the genus *Auricula*, collected by H. Cuming, Esq.

AURICULA TORNATELLIFORMIS. *Aur. testâ oblongo-acutâ, sub epidermide flavescente albidâ, transversim tenuissimè striatâ, et rugis longitudinalibus levissimis obsolete granulosa; spirâ conico-acutâ, lucidâ; anfractibus octonis subconvexis, ultimo magno supra medium ventricoso; columellâ infernè biplicatâ; labro supernè arcuatim emarginato.*

Long. 24 millim.; larg. $10\frac{1}{2}$ millim.

Hab. Tanhay, isle of Negros, Philippines. Found at the roots of mangrove-trees.

AURICULA DOLIOLUM. *Aur. testâ ovatâ, transversim tenuè et regulariter sulcatâ, striis longitudinalibus et irregularibus subpunctatâ, sordide rufo-fusâ, ultimo anfractu pallidiore albido-cinerascente, angustè plûs minûsve fasciatâ; anfractibus 6-7; aperturâ ovatâ intûs fusco-purpurascente; columellâ biplicatâ, supernè obsolete similè dentatâ; umbilico rumali; labro albo, intûs incrassato, tridentato, dente mediano majori, inferiori obsolete.*

Long. 10 millim.; larg. $5\frac{1}{2}$ millim.

Hab. Sinait, province of North Ilocos, island of Luzon. Found on decayed wood, salt water.

AURICULA RECLUSIANA. *Aur. testâ ovato-oblongâ, griseo virescente, spirâ conicâ, apice obtusâ, erodâ; anfractibus senis, planiusculis, unoquoque in superiorem imbricante, sub suturâ depressiusculo; umbilico nullo; aperturâ subovatâ intûs fusco-purpurascente; columellâ triplicatâ, plicâ superiori, latiori, lamelliformi, mediâ mediocri, inferiori minori; labro levigato, intûs zonâ albâ, subcalloso.*

Long. 16 millim.; larg. 8 millim. vix.

Hab. Island of Tumaco, West Colombia.

AURICULA PIRIFORMIS. *Aur. testâ subpiriformi, lævigatâ, fuscâ, sub epidermide viridi-cinerascente; anfractibus 7-8; spirâ breviconicâ, rotundatâ, apice acuto, nigro; aperturâ oblongâ, intûs fusco-violaceo; columellâ 5-plicatâ, plicis superioribus obsoletis, medianâ robustiori, lamelliformi, inferiori robustâ, subascendente, posticè circulari; labro acuto, pallidè emarginato, intûs 2-6 tenuiter striato.*

Long. 20 millim.; larg. 9 millim.

Hab. Tumaco island, West Colombia.

The number of striæ or folds on this shell varies, but most frequently there are five.

AURICULA CEYLONICA. *Aur. testâ ovatâ, supernè obtusè angulatâ, glabrâ fusco-viridescente, fasciis albis vel cinereis angustis cinctâ, anfractibus 8-9, planulatis; spirâ conico-depressiusculâ, apice nigrescente; columellâ triplicatâ, plicâ superiori albâ, crassiusculâ, lamelliformi, subtûs parvulâ, inferiori circulari; labro acuto, longè et profundè intûs sulcato, ad marginem fusco, lævi.*

Long. 15 millim.; larg. 10 millim.

Mr. Cuming possesses specimens which are of large size.

Hab. Ceylon.

Very fine striæ are sometimes perceptible upon half of the last whorl of this shell; the base of the columella is of a livid fawn-colour.

AURICULA PULCHELLA. *Aur. testâ parvulâ, ovato-acutâ, nitidâ, pellucidâ albicante, transversim fusco-zonatâ, lineis longitudinalibus rectis seu undulatis, æquidistantibus, zonas transversas secantibus, eleganter pictâ; anfractibus 6-7; spirâ conico-acutâ, fuscâ, apice mammillari; columellâ triplicatâ, plicis superioribus parvulis, approximatis, inferiori majori, subhorizontali; labro acuto, intûs tenuiter striato.*

Long. 6 millim.; larg. 3 millim.

Hab. St. Nicolas, isle of Zebu (Philippines).

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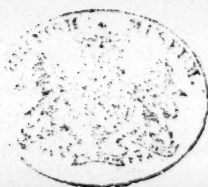
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